



**UNIVERSITY OF GONDAR**

**COLLEGE OF MEDICINE AND HEALTH SCIENCE**

**INSTITUTE OF PUBLIC HEALTH**

**LOW BACK PAIN AND ASSOCIATED FACTORS AMONG PRIMARY SCHOOL  
TEACHERS IN MEKELLE CITY, TIGRAY, NORTHERN ETHIOPIA**

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**A THESIS SUBMITTED TO THE INSTITUTE OF PUBLIC HEALTH,  
COLLEGE OF MEDICINE AND HEALTH SCIENCES, UNIVERSITY  
OF GONDAR, IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC  
HEALTH IN ENVIRONMENTAL AND OCCUPATIONAL SAFETY  
AND HEALTH MANAGEMENT**

June , 2015  
Gondar, Ethiopia

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**June , 2015**

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## **ACKNOWLEDGEMENT**

I would like to express my heartfelt gratitude to my advisors Solomon Mekonnen (PhD) and Haile Woldie (M.Sc.) who have been a great help to the completion of this research thesis starting from title selection, commenting the draft of my proposal and thesis and giving very important suggestions. I would also like to extend my appreciation to those teacher participants for voluntarily responding to the questionnaire and providing valuable information. I want to extend also my thanks to Mekelle sub city and zone education office heads, supervisors and data collector facilitators who had helped me in completing the data collection process. Also I want to express my great thanks to University of Gondar for giving this opportunity. Finally my gratitude goes to my wife and my children, class mate and friends for their great help.

## **ACRONYMS/ABBREVIATIONS**

AHR	Adjusted Hazard Ratio
BED	Bachelor of Education
CI	Confidence Interval
HSE	Health and Safety Executive
LBP	Low Back Pain
MSD	Musculoskeletal Disorder
TMD	Temporomandibular Disorders
WHO	World Health Organization

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## ABSTRACT

**INTRODUCTION:** Low back pain is one of the causes to decrease labor productivity due to time off work. It affects approximately 70% to 85% of the population at some time in life. The work of teachers is not only teaching students, but also doing other activities and hence, these groups are among the occupational groups who have a high prevalence of musculo skeletal disorder (MSD) that may cause teachers to suffer adverse mental and physical health issues due to the variety of job functions that can have a contribution to low back pain. However, limited data are available about the magnitude of the problem especially, among first and second cycle primary school teachers who are working in Mekelle city.

**Objective:** To Assess the prevalence of Low back pain and Associated factors among first and second cycle primary school teachers.

**Methods:** Institution based cross-sectional quantitative study was conducted from March 16 to March 30, 2015. 656 primary school teachers were selected using simple random sampling technique. Pre-tested and structured self administered questionnaire was used to collect the data. Descriptive statistics was calculated for most variables in the study. OR with 95% CI was used to assess the association between the exposure and outcome variable.

**Results:** A total of 611 (276 first cycle and 335 second cycle) primary school teachers were included in the study. The prevalence of low back pain was 74.8% [95%CI: 71.4, 78.2]. Of these 220(79.7%) were first cycle and 237 (70.7%) were second cycle primary school teachers. sleeping disturbance[AOR(95% CI)=6.99(2.20,22.20)], not having an office at work area [AOR(95% CI)=0.204(0.05,0.80)], less than 2 hours breaking time [AOR(95% CI)=2.88(1.08,7.66)] and feeling LBP during pregnancy[AOR (95% CI) = 2.27(1.06, 4.88)] had significant association with low back pain.

**Conclusion and recommendation:** This study showed high prevalence of low back pain among primary school teachers. All responsible people in working area including school directors, district and zone education office heads and supervisors have to consider the severity of this problem and take measure on the risk factors which is modifiable to prevent those which can predispose to low back pain.

# **1. INTRODUCTION**

## **1.1 STATEMENT OF THE PROBLEM**

Low back pain (LBP) is defined as pain and discomfort, localized between the costal margin (bottom of ribs) and above the inferior gluteal folds (top of legs)(1). Currently it is one of the major health problems and globally a big health concern due to its effect resulting into chronic pain, functional impairment, frequent sick leaves and absences from work and because of these facts it leads to countries with high economic-related implications burdened by less working hours, early retirement, less workforce and reduced productivity(2). School teachers are among the occupational groups who have a high prevalence of MSD(3). It is because the work of teachers is not only teaching students, but also doing other activities like preparing lessons, assessing students' work and participating in the extracurricular activities. Which may cause teachers to suffer adverse mental and physical health issues due to the variety of job functions that have a contribution LBP (4). Currently it is one of the major health problem and cause of medical expenses, absenteeism and temporary or permanent work disability(5). Work related low back pain is any back pain originating in the context of work and considered clinically to have been probably cause at least in part by the job climate(5). It is widely known as an important health and socio-economic problem(6). It is one of the major public health issues in several developed and developing countries, not only due to its high prevalence and incidence, but also because of the labor incapacity it generates, the intensive use of health services it causes and the number of missed working days(7).

Low back pain is one of the main causes of sickness absence in some developed countries like the United Kingdom where an estimated of 3.5 million working days were lost through musculoskeletal disorders mainly affecting the back region including the low back of the workers(8). Individuals having low back pain (LBP) have more possibility to demonstrate a variety of neuromuscular control alterations compared to asymptomatic individuals(9).

School teachers are among the occupational groups who have a high prevalence of musculoskeletal disorder (MSD) which in most cases lead to be exposed to low back pain (3). During the course of their work, teachers in their stay in school have the possibility to be exposed to conditions that cause physical health problems because of the fact that their work is not only teaching students, but also doing other activities like preparing lessons, assessing students' work and participating in the extracurricular activities, which may cause teachers to suffer adverse mental and physical health issues due to the variety of job functions that have a contribution to LBP(4). The lack of information on the prevalence of LBP in developing countries is a significant short coming(10). Limited data are available about the magnitude of the problem more importantly among primary school teachers. The primary teachers are composed of those of who teach in the first cycle (1-4 grades) and assigned as "self contained teachers" in which one teacher teaches 30 periods for each week for the whole year and those who are assigned in the second cycle (5-8 grades) and teach different specific subjects by different teachers. Hence this study aims to identify the low back pain and associated factors among the primary school teachers in Mekelle city.

## **1.2 LITERATURE REVIEW**

### **1.2.1 MAGNITUDE OF THE LOW BACK PAIN**

Globally, hundreds of millions of people are affected severely by musculoskeletal disorder that causes long term pain and physical disability and has detrimental effects on workers' health and productivity(11). Low back pain is most commonly caused by lumbar spinal stenosis which can result insignificant disability among older adults(12). In different parts of the world disability varies from country to country based on many factors. When we look at the difference in prevalence of disability, it is higher in the developed countries and lowers in the developing countries and the leading to disability among the four major musculoskeletal conditions in addition to osteoarthritis, rheumatoid arthritis, and osteoporosis is the low back pain(13).

Among the most common musculoskeletal discomforts observed in adolescents and adults, the most widely problem where its diagnosis is not always specific, and considered as a multi factorial disease is the lower back pain, which also known as "lumbago,"(14). Low back pain affects approximately 70% to 85% of the population at

some time in life. Some studies confirmed that 65.7% of the lower back is affected by musculoskeletal symptoms(15).

LBP is the most prevalent musculoskeletal condition and the most common cause of disability in developed nations. The epidemiological studies on LBP are accumulating. However most of them are restricted to developed countries and little is known about the epidemiology of LBP in the rest of the world. In developed countries such as the United States of America and Australia, LBP prevalence ranges from 26.4% to 79.2%. The lifetime prevalence of LBP (at least one episode of LBP in a lifetime) in developed countries is reported to be up to 85%(13). Low back pain is a very common disorder that affects 1 in 3 adults in the UK each year, with an estimated 2.5 million people seeking help from others(16).

Three high quality and Five medium-quality studies in Netherland demonstrated that the annual prevalence of low back pain was between 33 and 68%.(17). Most of the school teachers who had participated on a study conducted in turkey had shown that, work related musculoskeletal pain in low back pain to be 74.9%(18).Another Turkish study found that 43.8% of school teachers reported low back pain(19). Different studies in Chinese teachers had disclosed that, a prevalence of low back pain of school teachers to be a 59.2%(20), and 45.6%(21)

.66.15% of prevalence of low back pain was reported on Indian school teachers. The primary school teachers had shown that the prevalence of low back pain to be 13.13% in India(22) and 40.4% in Malaysia(23).

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Another cross sectional study conducted in Saudi governmental and private school female teachers disclosed that the prevalence of low back was reported to be 63.8% and this was also compared with available prevalence of low back pain in different countries(24). A recently conducted research indicated that school teachers are at an increased risk of musculoskeletal disorders which largely contributed by LBP with prevalence rates reported in Slovenia at between 12% and 84%(3). General assumptions on the prevalence of LBP in Africa showed that it is lower than that reported in the developed nations(13).

Studies also reported that a 55.7% 12-month prevalence of LBP registered in Botswana(4), and 53.8% in Ethiopia(25).

## **1.2.2 ASSOCIATED FACTORS OF THE LOW BACK PAIN**

### **1.2.2.1 SOCIO DEMOGRAPHIC FACTORS**

Systematic review on the prevalence of LBP in Africa found that the average lifetime prevalence among adolescents was 36% while among adults was 62%(13). But other study demonstrated in South Africa and Nigeria showed the mean LBP point prevalence among the adolescents to be 12% and among adults 32%.However, the average lifetime prevalence of LBP among the adolescents was 36% and the adults 62%(26).

When come to the issues of teachers on the LBP, the female school teachers had reported that at school, comparing with the male school teachers, they had showed a higher LBP in Turkey (45% vs41.2%) (27, 28). Study on Iran primary and high school teachers indicated that age, body mass index, job satisfaction, and long work experience were significantly associated with the prevalence of LBP(29).

A detailed investigation and analysis demonstrated in Malaysia on primary school teachers had indicated that a higher prevalence of low back pain was observed among men(39.6%) than among women (48.1%)(30).

A study in Nigeria indicated that low back pain was associated with age and begins in early life with highest frequency of symptoms occurring in the age range of 35 to 55(31). It was observed that sex, age, were among factors significantly associated with low back pain on the study demonstrated on primary, secondary and higher institution teachers in Gondar, Ethiopia(25).

### **1.2.2.2 WORK ENVIRONMENT FACTORS**

Study in Turkish school teachers showed that those teachers with a lower quality of life(QOL) were those who had more depressive symptoms (18).A detailed investigation and analysis demonstrated in Malaysia on primary school teachers had indicated that Lifting load,(28.0%), prolonged sitting (25.2%), prolonged standing (23.4%), marking exam assignments and home and class works as well as activities during physical education session(13.5%) were contributed to low back pain of the primary school teachers(30). Low back pain is among the various occupation influenced physical

illness which is in the top most position of the parts of the bodies of the school teachers as it was reported by a research conducted in Thoothukudi India. Prolonged standing, repeated walking inside the class room and lifting of the hand during writing in the black board were some of the factors which reported for the occurrence of the LBP on the school teachers(32). Similarly, the Iranian study indicated that factors like prolonged sitting and standing, working hours with computer, and correcting examination papers were obtained to be the most aggravating factors for low back pain at work place. On the contrary, taking rest and participating in physical activities were found to be the most relieving factors(29). In a review of the epidemiology literature concluded that job control, working without having break or monotonous work ,higher work load and pressurized time are highly related to musculoskeletal symptoms like the low back pain of individuals (33)

#### **1.2.2.3 BEHAVIORAL FACTORS**

Smoking habits, Physical activities, Sleeping habits, Eating habits ,were obtained to be associated with LBP among men and women on the cross sectional study conducted in Japan (34).A study done on Chinese school teachers indicated that, men teachers smoked higher (35.0%) than that of women (7.0%) and physical exercise was significantly associated with LBP (21).and smoking habit, sleeping disturbance and doing regular physical exercise were among factors significantly associated with low back pain according to the Ethiopian study(25).

#### **1.2.2.4 PSYCHOSOCIAL FACTORS**

A study demonstrated in Chinese teachers shown that, among all type of school teachers, the primary school teachers showed higher prevalence for sadness/depression (55.3 %; and sleep problems (75.9; (28).The severity of low back pain is statistically significant with the presence of chronic illness, anxious feeling and feeling of bad mood of the female school teachers as it was reported by the study demonstrated on Saudi female teachers(35). Results from Botswana school teachers reported that high psychological job demands were also significantly associated with LBP(4).



#### **1.2.2.5 CO-MORBIDITY FACTORS**

The primary school teachers in China had shown the women had higher percentages of complaints on asthma (13.5%vs 9.6% than the men(28). Studies done in Africa had reported that recurrent severe headache and history of LBP were among factors significantly associated with low back pain(4, 25) . A study conducted in Iran revealed that women who had been pregnant were developed LBP during pregnancy with prevalence of 57.3%(36). A cross sectional study conducted in Turk reveal that higher frequency of LBP of the pregnant women(54.1%) was higher than those who did not pregnant(37) Another prevalence study on LBP disclosed on pregnant women in Nigeria showed that the pregnant women developed LBP more (55.4%) that those who were not pregnant (38) .

### 1.2.3 CONCEPTUAL FRAME WORK

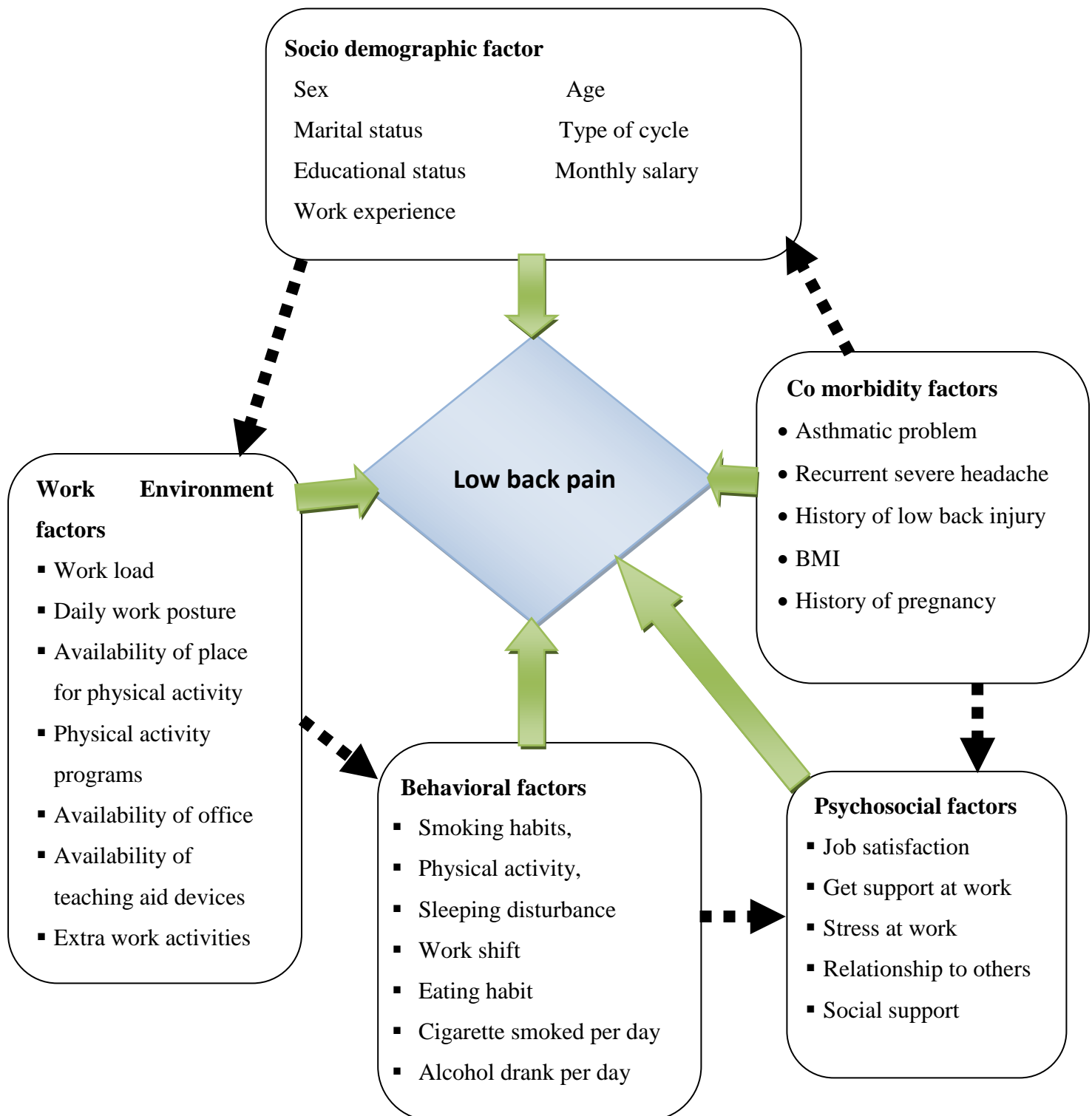


Figure 1Figure1. Conceptual frame work shows factors related with low back pain

### **1.3 JUSTIFICATION OF THE STUDY**

Low back pain (LBP) is a common and costly complaint that has greatly varied estimates of the economic costs in different countries and must be considered as a substantial burden on society(11). It is predicted that the prevalence of LBP will greatly increase in the next decade in developing nations like our country (10).

When we come in to the context of our country Ethiopia, the number of educational institutions are becoming now increasing from time to time which directly indicates an increase number of teachers and other related office workers in the schools(39). According to the Ministry of Education classification of academic institutions, Primary schools consist of two cycles, namely grades 1-4 grades are called first cycles in which one teacher is allocated to teach the students the whole year assigned as “self contained” teachers. Grades, 5-8 are also called second cycle where different subject teachers are assigned to teach holding different number of periods(40). Therefore, as many scientific studies or reviews revealed activities related to teaching like longer working hours (41) and the likes have a greater contribution to the LBP. However, in Ethiopia research conducted that focuses on first and second cycle primary school teachers are scant and the primary school teachers who are working in Mekelle town are poorly understood about the work related low back pain in terms of its frequency and associated factors that could increase the risk of the pain. The previous research conducted in Gondar town has focused on pooled analyzing. so that the risk group is not identified. At the same time, the study is limited to include some factors like cigarette smoked per day and alcohol drank per day which could confound the result. Hence, this study will fill these gaps and investigate the prevalence and associated factors among Mekelle town first cycle and second cycle primary school teachers which would contribute to the improvement of the national policy of safety and health management system on such classes of the society

## **2. OBJECTIVE**

### **2.1 GENERAL OBJECTIVE**

The aim of this study is to assess prevalence of low back pain and associated factors among primary school teachers in Mekelle city, north Ethiopia, 2015

### **2.2 SPECIFIC OBJECTIVES**

- To determine the prevalence of low back pain among primary school teachers.
- To identify associated factors of low back pain among primary school teachers.

### 3. METHODES AND MATERIALS.

#### 3.1 STUDY DESIGN AND PERIOD

Institutional based cross sectional study was carried out from March 16 - 30/2015.

#### 3.2 STUDY AREA

The study was conducted in Mekelle city governmental primary school teaching institutions. Mekelle city is located around 780 km north from the Ethiopian capital city Addis Ababa and 2,084 m (6,837 ft) above sea level in south-eastern zone of Tigray. According to the report of 2013 of the Central Statistical Agency of Ethiopia the town has a total population of more than 307,304 people living in the city(42). In Mekelle there are a total of 26 high schools, 15 first cycle primary schools and 64 second cycle primary schools. There are a total of 2856 primary school teachers in both governmental and private schools and out of these 48.7% are Female.

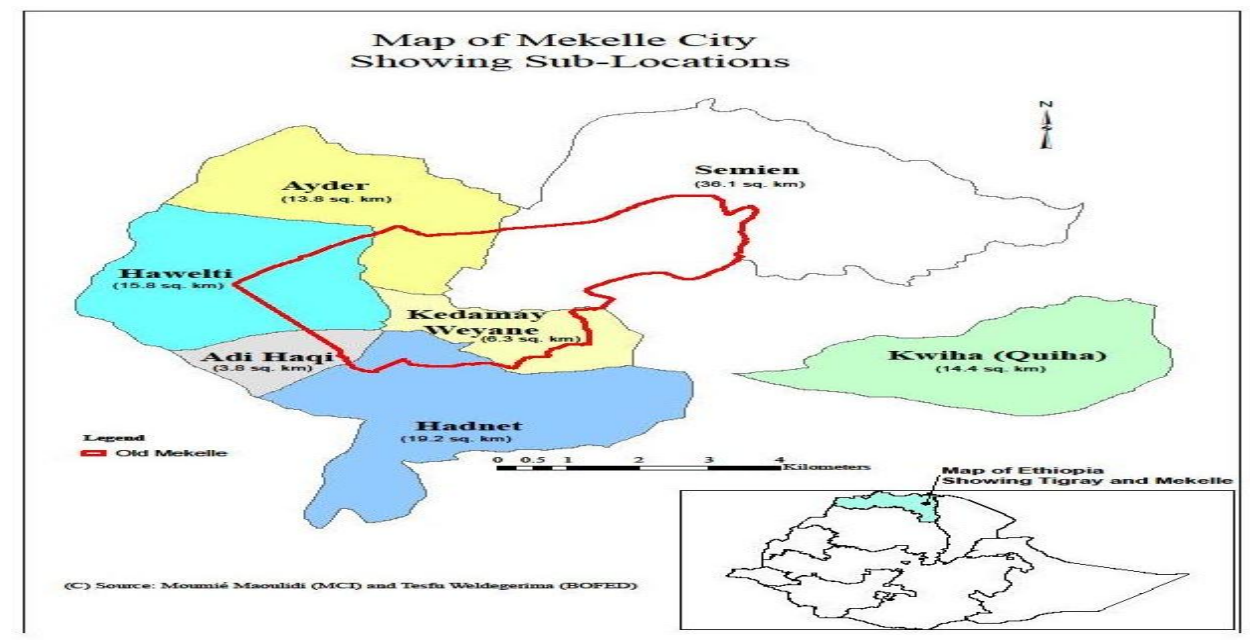


Figure 2 Figure 2. Map of the study area

#### 3.3 SOURCE AND STUDY POPULATION

All governmental teachers who are working in first cycle and second cycle primary schools in Mekelle city.

### 3.4 SAMPLE SIZE CALCULATION

The sample size was determined using single population proportion with assumption of 53.8% of prevalence(p) of previous study that had been conducted in Ethiopia on the high school, higher institution and primary schools teachers in Gondar CITY (25), a 95 % confidence interval, and a marginal of error 4 % with 10 % non response rate.

The total sample size was computed based on single proportion formula using Epi Info version 7.

A. Prevalence of low back pain (P value was taken from previous study which was p=53.8%)

Sample size(n) =  $[(Z_{\alpha}/2)^2 P(1 - P)] / w^2$

Sample size(n) =  $[(1.96)^2 0.538(1 - 0.538)] / (0.04)^2 = 596, + 60$  (10% non response rate) the total sample size was 656.

B/ Prevalence of associated factors

S.No.	Associated factors	Prevalence	Sample size
1	Prevalence of Smoking	79%	398+40(none response rate)= <b>438</b>
2	Prevalence of Sleeping disturbance	72%.	484+49(none response rate)= <b>533</b>
3	Prevalence of Having stress	76.6%	431+44(none response rate)= <b>475</b>

Therefore, the final sample size was determined to be **656**

### 3.5 SAMPLING PROCEDURE

Stratified probability sampling technique was employed based on their cycles. Teachers in the city were stratified in to first cycle primary schools teachers and second cycle primary schools teachers. The number of teachers included in the study from each group was determined proportionally among each group.

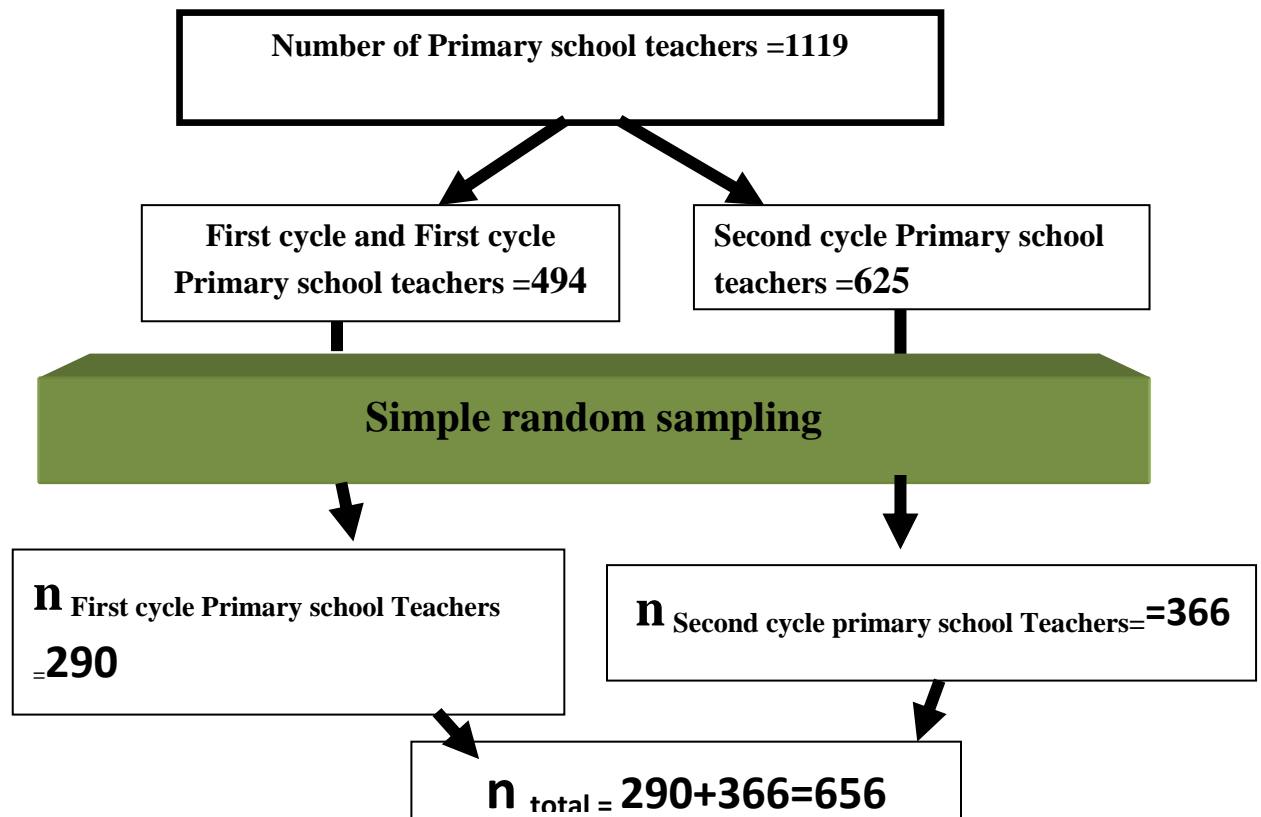


Figure 3 Figure 3. Schematic Presentation of sampling procedure.

### 3.6 INCLUSION AND EXCLUSION CRITERIA

#### 3.6.1. INCLUSION CRITERIA

Those teachers whose work experience greater than one year and are working in selected first cycle and second cycle primary schools found in Mekelle city, were included in the study.

#### 3.6.2 EXCLUSION CRITERIA

Seriously sick, individual having chronic spinal anomalies and being hospitalized at the time of data collection were excluded.

### 3.7 STUDY VARIABLES

#### 3.7.1 DEPENDANT VARIABLE:

Low back pain

### **3.7.2 INDEPENDENT VARIABLES:**

#### **Socio demographic factor:**

Sex, age, work experience, monthly salary, marital status, religion, Educational status and type of cycle

#### **Work Environment factors**

Work load, daily work posture, availability of place for physical activity, physical activity programs, availability of office, Availability of teaching aid devices, Extra work activities other than at their schools and working class conditions

#### **Behavioral factors**

Smoking habits, Physical activity, Sleeping habits, Work shift, Eating habit, Cigarette smoked per day and Alcohol drank per day

#### **Psychosocial factors**

Job satisfaction, Get support at work, Stress at work, Relationship to others and Social support

#### **Co-morbidity factors**

Asthmatic problem  
Recurrent severe headache  
History of low back injury  
History of pregnancy

### **3.8 OPERATIONAL DEFINITION OF VARIABLES**

**Low back pain:** Self reported pain or discomfort, localized between the costal margin (bottom of ribs) and above the inferior gluteal folds (top of legs) that lasts for days or weeks during the twelve month(1).

**Acute LBP:** LBP that lasts for less than 6 weeks.

**Sub acute low back pain:** LBP pain that lasts 6 -12 weeks.

**Chronic LBP:** LBP that lasts for 12 weeks or longer.



**Body mass index:** weight in kilograms divided by the square of the height in meters (kg/m<sup>2</sup>)

### **3.9. DATA COLLECTION PROCEDURE**

#### **3.9.1 DATA COLLECTION INSTRUMENTS**

Data were collected using self administered, structured and pre-tested questionnaire which was developed by reviewing literature in order to address the objectives of the study. The questionnaire was prepared originally in English and translated to local language (Tigrigna) and after, it was translated back to English by language experts to keep the consistency of the question. It had detailed questions on predictor factors like socio-demographic characteristics, their working environment factors, the behavioral factors, psychosocial factors and co-morbidity factors which have their own impact for developing LBP. The study participants were made to fill the questionnaire in their own respective schools after had been oriented as to how to give respond to the questionnaire by trained data collector facilitators and supervisors. The questionnaires were collected by the help of data collector to minimize non-response rate. The data collectors were two male and two female education graduating students and two education graduate (BED) supervisors were involved in the study. They had been trained for one day before data collection and after the pretest. A continuous supervision was carried out and the data was collected from March 16 /2015 to March 30/2015 (15 day's duration).

#### **3.9.2 DATA QUALITY CONTROL PROCEDURE**

To ensure quality of data, data collectors and supervisors had been trained by the principal investigators for one day. Pre-test of data collection tools was carried out by considering 5% (33 participants) of the sample size of the study on the first and second cycle primary school teachers who were not be included in the main study and found in other town ,Necessary correction was performed after the pre-test and the questioner was tested and appropriate measure was taken. The collected data was checked out before data entry for the completeness, accuracy and clarity by the principal investigator and supervisors daily after data collection and amendments were made before the next data collection.

### **3.10 DATA MANAGEMENT AND ANALYSIS**

The data was coded, entered and cleaned using Epi Info Version 7 and was exported to SPSS version 20 for further analysis. Overall proportion with 95% confidence interval (CI) was calculated to determine the overall prevalence. The associations between each potential explanatory variables and LBP in the previous 12-month was evaluated using the bivariate logistic regression analysis considering the potential explanatory variables as independent variables and 12-month experience of LBP as the dependent variable. After that any variables with a p-value  $\leq 0.25$  with the exception of age and gender, which would remain in the model regardless of statistical significance, were analyzed further using multivariable analysis for controlling the possible effect of confounders.

### **4. ETHICAL CONSIDERATIONS**

Ethical clearance was obtained from the institute of Public Health, University of Gondar. Official letters was submitted to Mekelle zone Education office and Mekelle city administration and permission letter was obtained from respective office.

The purposes and the importance of the study was explained & informed consent was obtained from each participant. Confidentiality was maintained at all levels of the study. Participant's involvement in the study was on voluntary basis and participants who were unwilling to participate in the study & those who wished to quit their participation at any stage were informed to do so without any restriction.

## 5. RESULT

### 5.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE study participants

From the total of 656 study participants, the response rate was 611(93.13%). Of this 276(95.17%) were first cycle primary school and 335(91.53%) were second cycle primary school teachers. Out of these 286(46.8%) were male and 325(53.2%) were female. The mean age ( $\pm$ SD) was 39.7( $\pm$  9.38) with the age range of 22 to 60 years. The mean age ( $\pm$ SD) for the first cycle primary school teachers was 40.8(  $\pm$  9.31) a range of 22 to 58, and 38.8(  $\pm$  9.35) with a range of 23-60 among second cycle primary school teachers Table 1.

**Table 1: Socio demographic characteristics of Primary school teachers (n=611) in Mekelle city, April, 2015.**

<b>VARIABLE</b>	<b>1<sup>ST</sup> &amp; 2<sup>nd</sup> CYCLE(n=611) FREQUENCY (%)</b>
<b>SEX</b>	
Male	280(45.8)
Female	331(54.2)
<b>Age</b>	
<30	139(22.7)
<b>31-40</b>	212(34.7)
<b>41 and above</b>	260(42.6)
<b>Religion</b>	
Orthodox	573(93.8)
Muslim	26(4.3)
Protestant	8(1.3)
Catholic	4(0.7)
<b>Educational Status</b>	
Certificate	24(3.9)
Diploma	488(79.9)
Bachelor Degree	99(16.2)
<b>Marital status</b>	
single	128(20.9)
married	401(65.6)
Divorced	82(13.4)
<b>Work experience</b>	
<10	119(19.5)
10-25	338(55.3)
>25	154(25.2)
<b>Way of teaching classes</b>	
Owning one class alone each week	57(9.3)
By moving from class to class	554(90.7)
<b>Monthly salary</b>	
>3740	265(43.4)
2514-3740	251(41.1)
<2514	95(15.5)
<b>Source of income</b>	
No	572(93.6)
Yes	39(6.4)
<b>Amount of income</b>	
<500	19(3.1)
500-1000	9(1.5)
>1000	12(2.0)

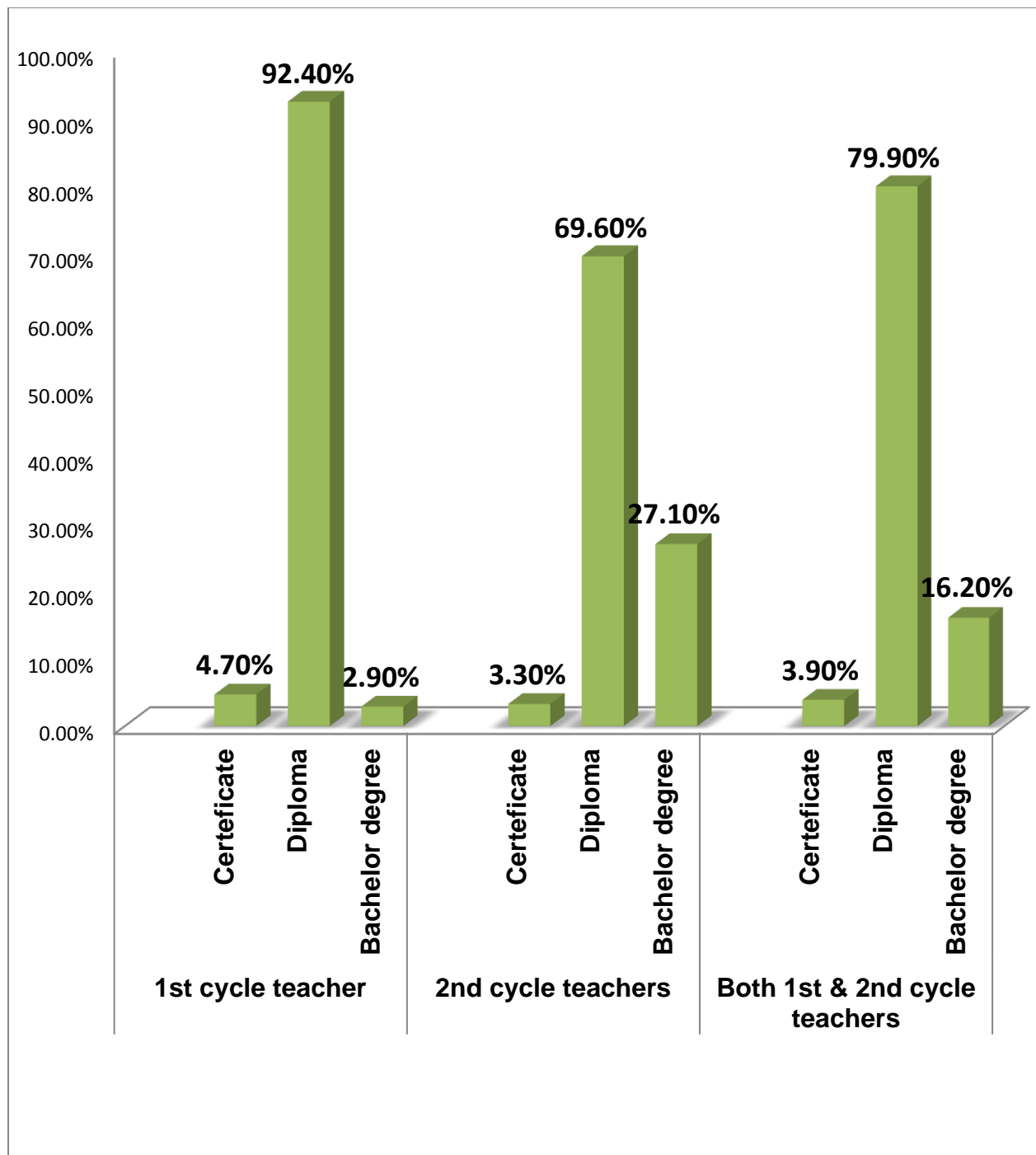


Figure 4 Educational status of Primary school teachers (n=611) in Mekelle city, April, 2015.

The overall 12 month prevalence of LBP was 74.8% [95%CI: 71.3, 78.2]. Out of this, the twelve month prevalence of the first cycle primary school teachers was 220(79.7%) and that of the second cycle was 237 (70.9%). The 12 month prevalence of LBP among women were higher 82.2% [95%CI: 78.0, 86.3] than men 66.1% [95%CI:60.5, 71.6] (Table 2).

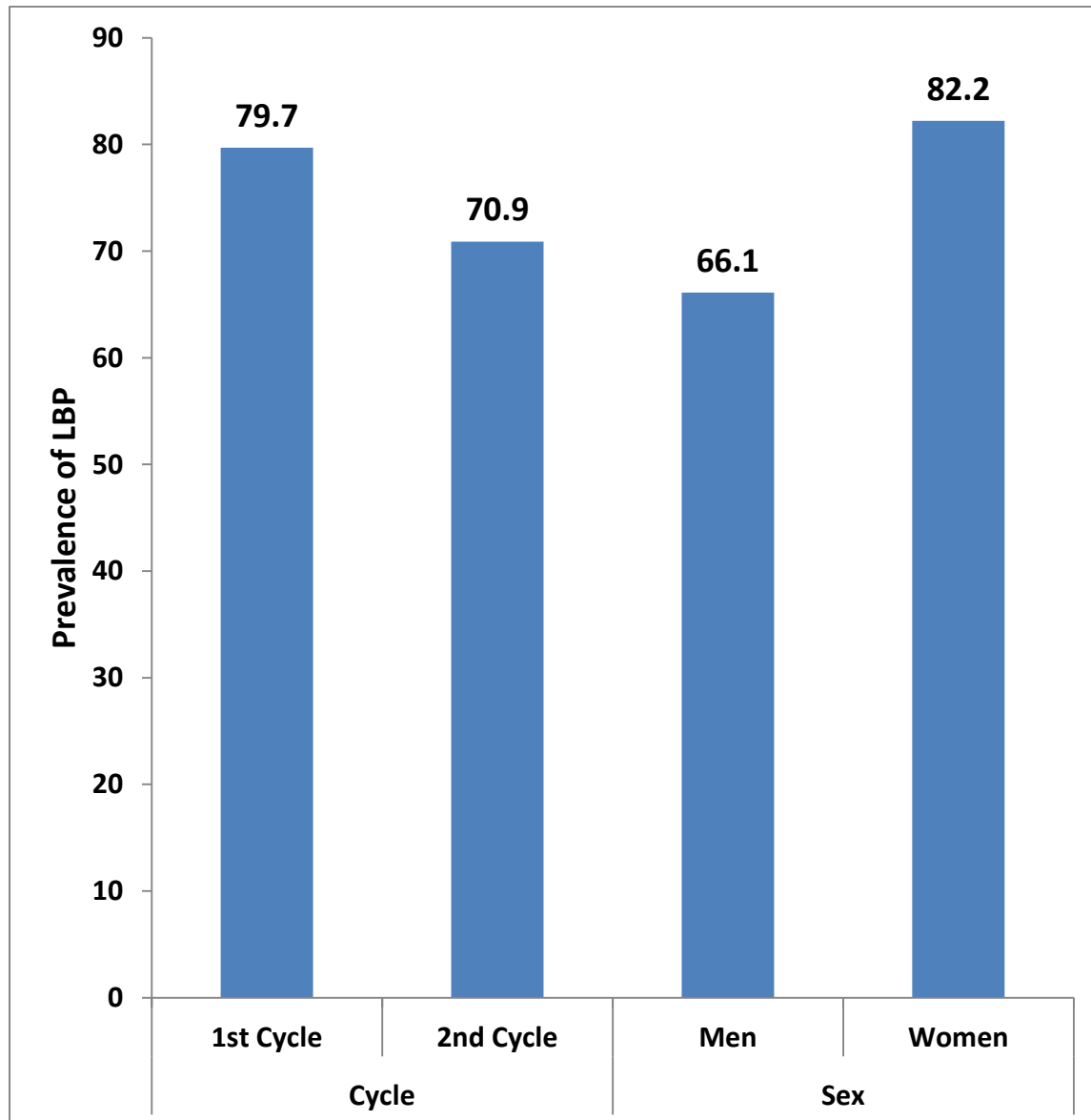


Figure 5 12 month prevalence of LBP experience of Primary school teachers (n=611) in Mekelle city, April, 2015.

202 (44.1%) participant teachers experienced for less than 6 week (sub acute) low back pain and the result is also true for that of 96 (43.6%) first and 106 (44.5%) second cycle primary school teachers respectively.

220(79%) of first cycle and 237(71.7%) second cycle primary school teachers know the cause of their low back pain and majority of them, 156(70.9%) of first cycle and 175(73.8%) second cycle primary school teachers had reported Prolonged standing to be the main cause for their feel of the low back pain during standing. 396(93.2%), respondents developed the pain after they had employed(Table2).

**Table 2: The prevalence of Low back pain of Primary school teachers (n=611) in Mekelle city, April, 2015.**

Back ground characteristics	First cycle (n=276)		Second cycle (n=335)		First and second cycle (n=611)	
	Yes n(%)	No n(%)	Yes n(%)	No n(%)	Yes n(%)	No n(%)
<b>LBP through entire job career</b>	202(73.2)	74(26.8)	223(66.6)	112(33.4)	425(69.6)	186(30.4)
<b>LBP in the last twelve month</b>	220(79.7)	56(20.3)	23(70.7)	98(29.3)	457(74.8)	154(25.2)
Cause of low back pain	220(79.7)	56(20.3)	237(71.7)	98(29.3)	457(74.8)	154(25.2)
Prolonged standing	156(70.9)	64(29.1)	175(73.8)	62(26.2)	331(72.4)	126(27.6)
Prolonged sitting	8(3.6)	212(96.4)	11(4.6)	226(95.4)	19(4.2)	438(95.8)
Lifting heavy loads	11(5)	209(95)	7(3)	230(97.1)	18(3.9)	439(96.1)
Injury in the back	3(1.4)	217(98.6)	4(1.7)	233(98.3)	7(1.5)	450(98.5)
Repeated walking inside the class	35(15.9)	185(84)	34(14.3)	203(85.7)	69(15.1)	388(84.9)
<b>Current history of LBP</b>	201(72.8)	75(27.2)	222(66.3)	113(33.7)	443(72.5)	168(27.5)
Feel of LBP During standing	95(47.3)	106(52.7)	116(52.3)	107(48.0)	212(34.7)	399(65.3)
Feel of LBP during teaching	37(18.4)	164(81.6)	45(20.3)	178(79.8)	83(13.6)	528(86.4)
Feel of LBP During sleeping	29(14.4)	172(85.6)	23(10.4)	200(89.7)	52(8.5)	559(91.5)
<b>Duration of LBP</b>						
Less than 6 weeks	96(43.6)	180(57.4)	106(44.5)	229(55.5)	202(44.1)	409(55.9)
6-12 weeks	62(28.2)	214(71.8)	76(31.9)	259(68.1)	138(30.1)	473(69.9)
More than 12 weeks	62(28.2)	214(71.8)	56(23.5)	279(76.5)	118(25.8)	493(74.2)
<b>Time of the pain onset</b>						
Before employment	12 (5.9)	190(94.1)	17(7.6)	206(92.4)	29(6.8)	396(93.2)
After employment	190(94.1)	12(5.9)	206(92.4)	17(7.6)	396(93.2)	29(6.8)



### **5.3 BEHAVIORAL CHARACTERSTICS**

Among the 276 first cycle and 335 second cycle primary school teachers, 5(1.8%) and 15(4.5%) of the teachers have history of smoking respectively. Near to three percent of first cycle and 11(3.3%) of second cycle teachers had khat chewing experience. The mean sleeping time of the respondent was 7.3 hours with 1.87 standard deviation and 253 (41.4%) of the teachers had sleeping time less than eight hour per day.

### **5.4 WORKING ENVIRONMENT CHARACTERSTICS**

During teaching practices, 602 (98.5%) of the respondents had standing position. The mean time of standing without break during teaching per day was 4.6 hour with standard deviation of 1.6 hour. Majority of the respondents 256(41.9%) had 2 hours and below break time per day. Among these, 135(48.9%) first cycle respondents had 2 hours and below, while 139 (41.5) second cycle respondents had 2-4 hours break time per day. Only 156 (25.5 the primary school teachers reported that they exposed to prolonged sitting due to teaching activities and the mean time exposed to sitting due to their work was 2.8hours per day with 2.3 hours standard deviation Majority of the total respondents 379(62.0%) reported that they did not get training about awareness of safety in their work place (Table-3)

**Table3: Working environment characteristics of first cycle(n=276), second cycle (n=335) and first and second cycle (n=611)Primary school teachers in Mekelle city, April, 2015.**

Background characteristics	1 <sup>st</sup> Cycle (n=276)		2 <sup>nd</sup> Cycle(n=335)		1 <sup>st</sup> and 2 <sup>nd</sup> Cycle(n=611)	
	Yes, n(%)	No, n (%)	Yes, n(%)	No, n(%)	Yes, n(%)	No, n (%)
Prolonged standing during teaching	273(98.9)	3(1.1)	329(98.2)	6(1.8)	602(98.5)	9(1.5)
<b>Length of standing</b>						
below4 hours	163(59.1)	113(40.9)	212(63.3)	123(36.7)	375(61.4)	236(38.6)
Above 4 hours	113(40.9)	163 (59.1)	123(36.7)	212(63.3)	236(38.6)	375(61.4)
<b>Length of break time/day</b>						
<2 hours	135(48.9)	141(51.1)	121(36.1)	214(63.9)	256(41.9)	355(58.1)
2:00-4:00 hours	89(32.2)	187(67.8)	139(41.5)	196(58.5)	228(37.3)	383(62.7)
5 & greater hrs	52(18.8)	224(81.2)	75(22.4)	260(67.6)	12(20.8)7	484(79.2)
Have prolonged sitting at work	86(31.2)	189(68.5)	70(20.9)	265(79.1)	156(25.5)	454(74.3)
<b>Exposed to prolonged sitting due to work</b>						
Prolonged sitting due to exam marking	163(59.1)	113(40.9)	250(74.6)	85(25.4)	413(75.1)	198(24.9)
Prolonged sitting due to assignment marking	52(18.8)	224(81.2)	85(25.4)	250(74.6)	137(24.9)	474(75.1)
<b>Type of seat usually used</b>						
Swivel chair	8(2.9)	268(97.1)	0	335100%	8(1.3)	603(98.7)
Normal chair	105(38.0)	171(62)	152(45.4)	183(54.6)	257(42.1)	354(57.9)
Bench	161(58.3)	115(41.7)	181(54.0)	154(46)	342(56.0)	269(44)
Sofa	2(0.7)	274(99.3)	2(0.6)	333(99.4)	4(0.7)	607(99.3)
<b>Work shift</b>						
only morning or afternoon	65(23.6)	211(76.4)	40(11.9)	295(88.1)	105(17.2)	506(82.8)
whole day shift	79(28.6)	197(71.4)	63(18.8)	272(81.2)	142(23.3)	469(76.7)

Background characteristics	1 <sup>st</sup> Cycle (n=276)		2 <sup>nd</sup> Cycle(n=335)		1 <sup>st</sup> and 2 <sup>nd</sup> Cycle(n=611)	
	Yes, n(%)	No, n (%)	Yes, n(%)	No, n(%)	Yes, n(%)	No, n (%)
one week morning and the other day afternoon	131(47.5)	145(52.5)	232(69.3)	103(30.7)	363(59.5)	248(40.5)
<b>Have office</b>	253(91.7)	23(8.3)	294(87.8)	41(12.2)	54(89.5)	7(10.5)
Chair and table in the office	210(76.1)	66(23.9)	256(76.4)	79(23.6)	466(76.3)	145(23.7)
Chair suited per height	156(56.5)	120 (43.5)	112(33.4)	222(66.3)	268(43.9)	342(56.0)
Table suited per height	161(58.3)	115(41.7)	121(36.1)	213(63.6)	282(46.2)	328(53.7)
<b>Use teaching aid device</b>	270(97.8)	6(2.2)	322(96.1)	13(3.9)	592(96.9)	19(3.1)
Chalk and board only	35(12.9)	235(87.1)	72(22.5)	250(77.5)	107(18.1)	504(81.9)
Flip chart	218(80.4)	52(19.6)	232(72.5)	90(27.5)	450(76.1)	161(23.9)
Over head projector	11(4.1)	259(95.9)	12(3.8)	310(96.2)	23(3.9)	588(96.1)
Laptop and projector	2(0.7 )	268(99.3)	1(0.3)	321(99.7)	3(0.5)	608(99.5)
Other	4(1.5)	266(98.5)	3(0.9)	319(99.1)	7(1.2)	604(98.8)
Lift heavy material	97(35.1)	179(64.9)	109(32.5)	226(67.5)	206(33.7)	405(66.3)
<b>Type of heavy material lifted</b>						
Teaching aid devices	38(13.8)	238(86.2)	50(45.9)	285(54.1)	88(42.7)	523(57.3)
Heavy materials other than teaching aid	59(21.4)	217(78.6)	59(54.1)	276(45.9)	118(57.3)	493(42.7)
Extra work out side school	61(22.1)	215(77.9)	46(13.7)	289(86.3)	107(17.5)	504(82.5)
Low lighting problem	266(96.4)	10(3.6)	316(94.3)	19(5.7)	582(95.3)	29(4.7)
Noise problem	82(29.7)	194(70.3)	118(35.2)	217(64.8)	200(32.7)	411(67.3)
High thermal problem	99(35.9)	177(64.1)	115(34.3)	220(65.7)	214(35.0)	397(65.0)
Ventilation problem	254(92.0)	22(8.0)	247(73.7)	88(26.3)	501(82.0)	110(18.0)
<b>Getting training about awareness of safety</b>	112(40.6)	164(59.4)	120(35.8)	215(64.2)	232(38.0)	379(62.0)

## **5.5 Psychosocial characteristics**

Among a total of 611 respondents 417(68.2%) were satisfied with their working environment. From these, 184 (66.7%) and 233 (69.6%) were first and second cycle primary teachers respectively.. Out of the total respondents (611) of the primary school teachers, 325(53.2%)had discouragement and depression, 402 (65.8%) feel happy at work, 391(64.0%) had got irritated or angry at other persons more often than usual and 202(33.1%) had experienced any verbal or physical violence at their work (table).(Table 4)

**Table 4: Psychosocial characteristics of first cycle (n=276), second cycle (n=335) and first and second cycle (n=611) Primary school teachers in Mekelle city, April, 2015.**

Background characteristics	1 <sup>st</sup> Cycle (n=276)		2 <sup>nd</sup> Cycle(n=335)		1 <sup>st</sup> Cycle&2 <sup>nd</sup> Cycle (n=611)	
	Yes,n(%)	No, n (%)	Yes, n(%)	No, n(%)	Yes,n(%)	No, n(%)
Satisfaction with working environment	184(66.7)	92(33.3)	233(69.6)	102(30.4)	417(68.2)	194(31.8)
Have discouragement and depression	161(58.3)	115(41.7)	164(49.0)	171(51.0)	325(53.2)	286(46.8)
Feel happy at work	203(73.6)	73(26.4)	199(59.4)	136(40.6)	402(65.8)	209(34.2)
Experience of any verbal or physical violence	97(35.1)	179(64.9)	105(31.3)	230(68.7)	202(33.1)	409(66.9)
Get irritate or angry at others	167(60.5)	109(39.5)	224(66.9)	111(33.1)	391(64.0)	220(36.0)
Get angry at family	21(12.6)	146(87.4)	22(9.8)	202(90.2)	43(11.0)	348(89)
Get angry at colleagues	96(57.5)	71(42.5)	138(61.3)	86(38.7)	234(59.7)	157(40.3)
Supervisors	3(1.8)	164(98.2)	12(5.3)	212(94.7)	15(3.8)	376(96.2)
Get angry at boss	37(22.2)	130(77.8)	41(18.2)	183(81.8)	78(19.9)	313(80.1)
Have stress	157(56.9)	119(43.1)	215(64.2)	120(35.8)	372(60.9)	239(39.1)
Family related stress	7(4.4)	150(95.6)	6(2.8)	209(97.2)	13(3.4)	359(96.6)
Stress of financial constraint	81(50.6)	76(49.4)	128(59.0)	87(41.0)	209(55.4)	163(44.6)
Health related stress	21(13.1)	136(86.9)	24(11.1)	191(88.9)	45(11.9)	327(88.9)
Stress at work	38(23.8)	119(76.2)	45(20.7)	170(99.3)	83(22.0)	289(78)
Worries about the future related stress	13(8.1)	144(91.9)	14(6.5)	201(93.5)	27(7.2)	345(92.8)
Good relationship with others	272(98.6)	4(1.4)	323(96.4)	12(3.6)	595(97.4)	16(2.6)
Get support at work	201(72.8)	74(26.8)	265(79.1)	70(20.9)	466(76.4)	144(23.6)
Support From boss	18(9.0)	183(91)	33(12.4)	232(87.6)	51(10.9)	451(89.1)
Support From Colleagues	80(39.8)	121(60.2)	77(28.8)	188(71.2)	157(33.5)	309(66.5)
Support From Supervisors	49(24.4)	152(75.6)	123(46.1)	142(53.9)	172(36.8)	294(63.2)

## 5.6 Co morbidity characteristics

From the total respondents 206(33.7%), 101(16.5%) 198(32.4%) responded that they had recurrent severe headache, asthmatic problem and history of low back injury respectively.

**Table 5: Co morbidity characteristics of Primary school teachers (n=611) in Mekelle city, April, 2015.**

Background characteristics	1 <sup>st</sup> Cycle (n=276)		2 <sup>nd</sup> Cycle(n=335)		1 <sup>st</sup> Cycle&2 <sup>nd</sup> Cycle (n=611)	
	Yes,n(%)	No, n (%)	Yes, n(%)	No, n (%)	Yes,n(%)	No, n (%)
<b>Recurrent severe headache</b>	97(35.1)	179(64.9)	91(27.2)	244(72.8)	206(33.7)	405(66.3)
Feel LBP during headache	85(30.8)	29(10.5)	67(71.3)	27(28.7)	152(73.7)	56(26.3)
<b>Asthmatic problem</b>	44(15.9)	232(84.1)	57(17.0)	278(83.0)	101(16.5)	510(83.5)
Feel LBP during asthma	35(12.7)	21(7.6)	41(75.9)	13(24.1)	76(69.1)	34(30.9)
History of LB injury	91(33.0)	185(67.0)	107(31.9)	228(68.1)	198(32.4)	413(67.6)

## 5.7 Factors associated with low back pain

Analysis was carried on using both bivariate and multivariate logistic regression to see the association between predictor variables with the outcome variable. By bivariate logistic regression analysis, sex, age, marital status, working experience and monthly salary was significantly associated with the outcome variable of LBP, but none was significant in multivariate logistic regression.

Primary school teachers who had ever smoked any tobacco product had sleeping disturbance have office at their work place [had got discouraged or depressed, feel happy at work, had severe head ache, had some length of break time and history of low back injury showed significant association with LBP by bivariate . However in the multivariate analysis, those teachers who had sleeping disturbance[AOR(95% CI)=6.99(2.20,22.20)], have office at their work place [AOR(95% CI)=0.204(0.05,0.80)], and had some length of break time[AOR(95% CI)=2.88(1.08,7.66)] were significantly associated with low back pain.

All the associated factors in the multivariate except having an office at work area, they shown having positive impact on the development of LBP .Having an office at their work place was shown to be protective factors for the occurrence of LBP.(see table 6).

Prolonged standing, Having own chair and table at the office of work area, having noise problem at work place and getting training about safety were shown an association with low back pain by bivariate analyses. But, none of them were associated in the multivariate analyses. Thus, the odds of LBP among those primary school teachers who had an office at work place decreases by 0.204 times than those teachers who had no office at their work place [AOR (95% CI) =0.204(0.05, 0.80)].Similarly, the odds of LBP among those teachers with break time of less than 2hrswere is 2.88 times more higher than those who had greater length of break time [AOR(95% CI)=2.88(1.08,7.66)].

Bivariate analyses of the psychological characteristic factors had shown that , Satisfaction with working environment and culture, getting discouraged and depressed, Feeling happy at work area, getting irritated or angry and having stress

showed significant association with low back pain. But, none of them were significantly associated with low back pain in multivariate analyses.

Factors like, recurrent severe headache, feel of LBP due to severe headache, having asthmatic problem, history of low back pain and feel of back pain during pregnancy were significantly associated with low back pain by bivariate analyses. However, only feel of back pain during pregnancy [showed significant association with LBP during the multivariate analyses, AOR (95% CI) = 2.27(1.06, 4.88)] with 61.9% prevalence and [(95% CI :( 56.2, 67.90)]. Thus, The odds of LBP is 2.27 times among those female primary school teachers who had feel of back pain during pregnancy than those who did not become pregnant and feel LBP during pregnancy.



**Table 6: The association between some selected variables and low back pain Development among Primary school teachers (n=611) in Mekelle city, April, 2015**

Back ground characteristics		Low back pain				
		Yes, n	No, n	COR(95% CI)	AOR(95% CI)	P-value
Type of cycle of primary school	1 <sup>st</sup> cycle	220	56	1.62(1.11,2.36)	1.27(0.58,2.79)	0.54
	2 <sup>nd</sup> cycle	237	98	1	1	
Sex	Male	185	95	1	1	0.13
	Female	272	59	2.36(1.62,3.44)	3.23(0.69,15.02)	
Age	<30	92	47	1		0.11
	30-40	156	56	1.42(0.89,2.26)	0.30(0.07,1.33)	
	≥41	209	51	2.09 (1.31,3.33)	0.42(0.07,2.42)	
Marital status	single	79	49	1	1	0.199
	Married	307	94	2.02(1.32, 3.09)	2.70(0.80,9.10)	
	Other*	71	11	4.00(1.933, 8.29)	4.07(0.75,22.15)	
Work experience	<10	74	45	1	1	0.329
	10-25	263	75	2.13(1.35,3.34)	2.56(0.38,17.00)	
	>25	120	34	2.14(1.26,3.65)	2.64(0.29,23.89)	
Monthly salary	>3740	209	56	2.38(1.43,3.95)	1.15(0.21,6.38)	0.957
	2514-3740	190	61	1.981.20,3.28)	1.01(0.19,5.43)	
	<2514	58	37	1	1	
Ever smoking experience	No	392	143	1	1	0.998
	Yes	65	11	2.15(1.10,4.20)	356298028.2(0.00,.)	
Sleeping disturbance	No	261	121	1	1	0.001
	Yes	196	33	2.75(1.79,4.22)	6.99(2.20,22.20)	
Regular physical exercise	No	330	93	1	1	0.084
	Yes	127	61	0.58(.40,.86)	0.46(0.19,1.10)	
Prolonged standing	No	4	5	1	1	0.237
	Yes	453	149	3.80(1.00,14.33)	4.78(0.35,64.05)	
Length of breaking time	Below 2hrs	202	54	2.35(1.47,3.74)	2.88(1.08,7.66)	0.034
	2:05-4hrs	177	51	2.18(1.35,3.50)	1.61(0.59,4.35)	
	5hrs &above	78	49	1	1	
Have office	No	40	24	1	1	0.023
	Yes	417	130	1.92(1.11,3.31)	0.20(0.05,0.80)	
Getting training about awareness safety at work	No	161	71	1.57(1.08,2.27)	2.13(0.92,4.91)	0.075
	Yes	296	83	1	1	
Have stress	No	155	84	1	1	

Back ground characteristics		Low back pain				
		Yes, n	No, n	COR(95% CI)	AOR(95% CI)	P-value
Have asthma	Yes	302	70	2.33(1.61,3.39)	1.07(0.48,2.37	0.855
	No	373	137	1	1	
Feel of back pain during pregnancy	Yes	84	17	1.81(1.04,3.16)	0.95(0.28, 3.25	0.947
	No	76	25	1	1	
	Yes	144	20	2.36(1.23,4.53)	2.27(1.06,4.88)	0.035

\*Divorced, separated and widowed

## 6. Discussion

The overall 12 month prevalence of LBP among primary school teachers was higher compared to the previous study. The proportion of primary school teachers was higher among women (82.2%) than men (66.1%). Factors such as sleeping disturbance, not having an office at work area, less than 2 hours breaking time and feeling LBP during pregnancy had significant association with low back pain.

The prevalence of this study is in line with a study conducted in Gondar Ethiopia (53.8%)(25), Botswana (55.7%)(4), China (59.2%)(20), China(45.6%)(21) and Saudi (63.8%)(24).and higher than study conducted in Turkey school teachers(74.9%)(22). The higher prevalence of low back pain among these might be because of social and economic differences between Ethiopia and the other countries in which the other similar studies conducted, the low provision of awareness about how to decrease and protect such work place hazard, way in which work was organized and the work load of the primary school teachers could be considered as reasons that contribute to the differences observed in comparison to the studies demonstrated in the other places.

Majority of the first and second cycle primary school teachers participants were female compared to male participants and the prevalence was substantially higher among women (82.2%) than men (66.1%). This is in line with previous studies that showed a higher prevalence of LBP among women than men conducted in Malaysia primary school teachers [(48.1% vs 39.6%)](31) and Turkey [(45% vs 41.2%)] (28, 29). The possible reason why women appear to report more low back pain than men could possibly be due to specific or non-specific causes. That is, in addition to what the women did activities during the teaching at their school in parallel to the men teachers, women teachers are culturally and socially influenced to perform almost all home activities which made them to be highly loaded and susceptible to develop higher LBP than men teachers.

Sleeping disturbance was positively associated with LBP. Among the primary school participant teachers, those teachers who were not feel comfort or disturbed during sleeping were more than six times more likely to experience low

back pain in comparison with those teachers who were feel comfort or not disturbed during sleeping time. This finding was consistent with studies conducted in Gondar, north west Ethiopia(25) and Japan(37 ). The reason for the existed difference between those teachers who disturbed and who did not disturbed during sleeping time might be that , those teachers who were lacked getting sufficient sleeping time would not get enough rest time than those teachers who got sufficient sleeping time. In other words, this might be related with the stress that could be associated with having unhealthy sleeping nights thus predisposing to low back pain or they might be exposed to prolonged sitting when they could not able to sleep properly.

Owning an office at the work place was observed negatively associated with LBP in this study. Hence, those primary school teachers who own an office at work place had less likely to experience LBP when they compare with those primary school teachers who did not have an office at work place. This finding was similar with the study conducted in Gondar ,Ethiopia(25). The absence of an office at work place would imply that, those teachers who did not have an office would lack indirectly to have as per height of the teachers chairs and tables which they would be forced to have sit to have rest after the prolonged standing during their teaching activities in a position or place that would possibly deformed their posture of their body so that they would tend to develop LBP than those teachers who had an office at their work place.

Length of break time of the teachers is another factor which has a positive significant association with LBP in this study among the primary school teachers, those who had break time less than two hours at their school had increased the risk of developing LBP by 2.88 times than those primary school teachers who had more than two hours of break time. This result is supported by the review of the epidemiology demonstrated by WHO scientific group(33). The possible reason for the difference in developing the risk of LBP among those teachers who had shorter and longer hours of break time at work place could be those who had shorter break time at work place lack sufficient time for recovery of their body than those who had longer break time that might let them to get sufficient recovery time of their body at work place .

Feeling of LBP during pregnancy had appositive impact and was significantly associated with LBP in this study.

The female teachers who became pregnant when teaching at their school had shown 2.27 times more likely to develop LBP than those female teachers who did not become pregnant in the academic year. This study is higher than the prevalence obtained on studies conducted in Nigeria (55.4%)(38) and Turk 54.1%)(37) but in line with studies conducted in Iran (57.3%)(36)..The possible reason for this finding or study could be the fact that when the female teachers got pregnant and the fetus is growing from time to time, the naturally curved nature of the lumbar spine, would become flattened to provide space for the growing fetus. At the same time laxity of the ligaments also occurred during the pregnancy. Therefore, derangement in lumbar spine or flattening of lumbar lordosis and laxity of ligaments could be the possible reasons for risk of developing LBP during pregnancy of the teachers in the academic year.

## **7. STRENGTHS AND LIMITATIONS OF THE STUDY**

### **7.1 STRENGTH**

- ❖ Data collectors were trained selected from education graduating students with one supervisor from occupational health and safety professionals
- ❖ Frequent supervision and on spot checking was made by supervisors and principal investigator during data collection

### **7.2 LIMITATION**

- ❖ This study only focused on the primary school teachers who are working in the urban areas and didn't indicate the magnitude of the problem among teachers working in the rural areas..
- ❖ The study was depending on self reported data of the participants which was susceptible to recall bias causing under or overestimation.
- ❖ The study was not out of the limitations of cross sectional study like identifying the temporal relationship.
- ❖ Measurements for lighting, noise and temperature had not taken in to consideration.

## **9. CONCLUSION**

From this study it is possible to conclude that the prevalence of low back pain among the primary school teachers is higher and sleeping disturbance, length of break time at work place and feel of LBP by female teachers during pregnancy when working in the school can increase the risk of developing LBP among the primary school teachers. Whereas, having an office at the work place can protect the risk of developing LBP by the primary school teachers.

## **10. RECOMMENDATIONS**

### **FOR PRIMARY SCHOOL MANAGEMENT, DISTRICT AND ZONE OFFICES**

- Provisions of office with appropriate chairs and tables for teachers alleviate the problem of LBP.
- Provision of sufficient break time by increasing number of teaching staff who can possibly decrease the workload that lead to the appearing of risk of LBP among the teachers

### **FOR RESEARCHERS:**

- Conduct further study on the other group of teachers to come up with the conclusion of observing the final risk group of LBP that appears during teaching activities.
- Conduct this research with another design like cross sectional comparative design on different part of country since we don't have enough research on this topic.

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## ANNEX ONE: ENGLISH VERSION OF QUESTIONNAIRE

### UNIVERSITY OF GONDAR COLLEGE OF MEDICINE AND HEALTH SCIENCE INSTITUTE OF PUBLIC HEALTH

Questionnaire for assessing prevalence of low back pain and associated factors among Governmental first and second cycle primary school teachers in Mekelle town administration, Mekelle, North Ethiopia

Questionnaire identification number-----

Name of Primary school-----

#### **Verbal Consent form before conducting interview**

Hello! I am -----I am a public health 2<sup>nd</sup> year graduating student in university of Gondar college of medicine and health science institute of public health. And you are chosen to participate in this study by chance. The purpose of this study is to generate information about magnitude of low back pain and associated factors among health Governmental and private first and second cycle primary school teachers in Mekelle town administration; which may help policy makers, responsible persons in the Ministry of education, educational bureau and schools , stakeholders and significant others to take actions based on the findings. The study will involve various intimate and private life questions. In order to effectively attain the objective of the research, we are requesting your help. There are questions related to low back pain and associated factors for you to fill completely and there is no need to put your name on the questionnaire; no individual responses will be reported. Your responses will be completely confidential. It is your full right to refuse in responding any question or all of the questions. If you don't want to participate you can leave the questionnaire empty. However, your honest answers to these questions will help us in better understanding of magnitude of low back pain and associated factors,

so; we are requesting you to give your honest responses and keep participation.  
It will take a maximum of 25 minutes to answer these questions.

Would you willing to participate please?

1. Yes ☐

2. No ☐

If you are pleasurable to participate in the study please visit the next page

Name and signature of the data collector who sought the consent-----

-----Date of interview-----time started-----time

completed-----Checked by supervisor: Name and signature-----

-----Date-----Questionnaire identification number-----

-----

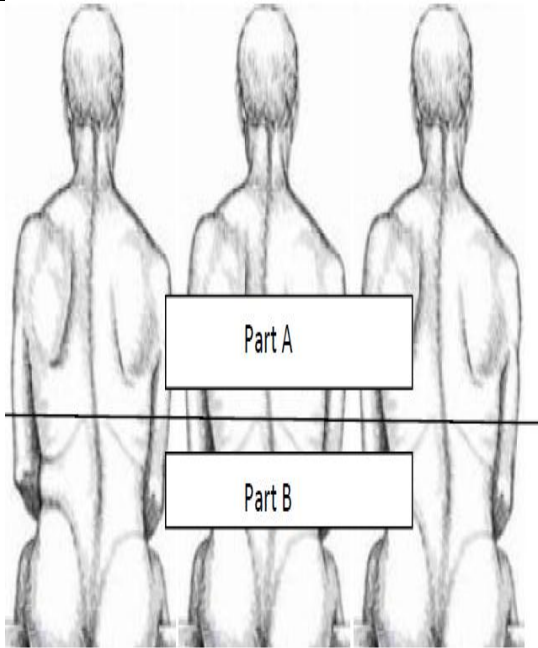
### SECTION ONE: QUESTIONS RELATED TO SOCIO DEMOGRAPHIC INFORMATION.

S.NO.	Question	Possible Response	Code
Q101	Age	-----years	
Q102	Sex	1.Male 2.Female	
Q103	If Female for Q1o1 are you pregnant?	1.yes 2.No	
Q104	Religion	1.Orthodox 2.Muslim 3.Protestant 4Catholic 5. Other specify-----	
Q105	Educational status	1. Certificate 2. Diploma 3. Bachelor Degree 4. Master	

		5. PhD  6. other-----	
Q106	Marital status	1. Single      4. Separated  2. Married      5. Widowed  3. Divorced	
Q107	Type of primary school cycle you teach more periods	1. First cycle primary school (1-4 Grade)  2. Second cycle primary school (5-8 Grade)	
Q108	How do you teach the classes?	1. Owning one class alone each week  2. By movingn from class to class	
Q109	Work experience in years	-----Years	
Q110	Monthly Salary in Ethiopian Birr	-----Birr	
Q111	Do you have any other sours of income	1.yes  2.No	
Q112	If yes for Q 111 how much/month		

## SECTION TWO: QUESTION RELATED LOW BACK PAIN

Q201	Have you ever experienced back pain in your entire job career?	1.yes      2.No	
Q202	If yes for <b>Q201</b> on which part you feel the pain? See the following picture.		

	 <p>The area indicated below the line (part B) is your low back.</p>	<ol style="list-style-type: none"> <li>1. part A</li> <li>2. part B</li> <li>3. both part A and B</li> </ol>	
Q203	When was you developed the pain?	<ol style="list-style-type: none"> <li>1.Before employment</li> <li>2.After employment</li> </ol>	
Q204	Occurrence of the back pain	<ol style="list-style-type: none"> <li>1.During standing</li> <li>2.Only during teaching</li> <li>3.During sitting</li> <li>4.During sleeping</li> <li>5.During walking</li> <li>6.During physical exercise</li> </ol>	

Q205	Frequency of the back pain	1.only once 2.Sometimes 3.Frequently 4.Always	
Q206	Have you experienced the back pain in the last 12 month?	1.yes      2.No	
Q207	If yes for Q206 for how long experienced the back pain	1.less than 6 weeks 2.6-12 weeks 3.more than 12 weeks	
Q208	What do you think the possible causes of your back pain?	1.Prolonged standing 2.Prolonged sitting 3.Lifting heavy loads 4.Injuryin the back 5.Sitting and doing work on computers 6. Repeated walking inside the class 7.Repeated writing on the blackboard 8. I do not know 9. Other	

Q209	How many days of work have you missed in the 12 month because your back pain?	-----days	
Q2010	Do you currently have back pain	1.yes  2.No	
Q2011	If yes for Q2010 what was the cause	1. My current work 2. Other 1. I do not know	

### SECTION THREE: QUESTION RELATED ON BEHAVIORAL FACTORS

Q301	Have you ever smoking any tobacco product?	1.yes  2.No	
Q302	Do you currently smoke cigarettes	1.yes  2.No	
Q303	If yes for Q301 how many cigarette per day?	___cigarettes per day	
Q304	Do you chew khat ?	1.yes  2.No	
Q305	If yes for Q304 how many grams of khat per week?	-----grams	
Q306	Are/were you have alcohol drinking experienced?	1.yes      2.No	



Q307	Do you currently drink alcohol	1.yes  2.No	
Q308	If yes for Q307 what type of drink?	1.Beer  2. Tela  3. Drink greater alcohol content than beer (liker)  4. mixed  5. Other please specify. _____	
Q309	If yes for Q307,how much per day?	1.Amount ____bottle/glass per week	
Q3010	Do you have sleeping disturbance?	1.yes          2.No	
Q3011	How many hours do you sleep per day?	-----hours	
Q3012	Are you experienced in doing regular exercise/physical activities?	1.yes          2.No	
Q3013	Do you have proper eating habit (eating with regular interval including variety in your meal)?	1.yes          2.No	

#### **SECTION FOUR: QUESTION RELATED ON WORKING ENVIRONMENT**

Q401	Do you have standing during your teaching practice?	1.yes          2.No	
------	---	---------------------	--

Q402	If yes for Q401 how long you stand during your teaching practice without breaking hours per day?	-----hours per day	
Q403	How long you have break time do per day?	-----hours per day	
Q404	Do you have prolonged sitting position at your work ?	1.yes          2.No	
Q405	If yes for Q404, how long do you sit at work per hours per day?	-----hours per day	
Q406	What expose you for prolonged sitting?	1.Exam marking 2.Assignment marking 3. Class work correcting 4. home work correcting 5.others	
Q407	What type of seat you usually use	1. Swivel chair 2. Normal chair 3. Bench 4. Sofa ...	
Q408	Does your school have place for physical activities?	1.yes          2.No	
Q409	If yes for Q407, does your school have any program for physical activity?	1.yes          2.No	
Q4010	If yes for Q408, do you practice in the program of your school for the physical	1.yes          2.No	

	activity?		
Q4011	What is your work shift?	1 Always morning 2.Always afternoon 3.One week Morning and the other week afternoon	
Q4012	Do you have office at your work place?	1.yes      2.No	
Q4013	If yes for Q4011, do you have your own chair and table in your office?	1.yes      2.No	
Q4014	If yes for Q4012, is your chair comfortable?	1.yes      2.No	
Q4015	If yes for Q4012, is your table comfortable?	1.yes      2.No	
Q4016	If yes for Q4012, is your chair suited as per your height?	1.yes      2.No	
Q4017	If yes for Q4012, is your table suited as per your height?	1.yes      2.No	
Q4018	Do you use any teaching device ?	1.yes      2.No	
Q4019	If yes for Q4018, which type of device you use?	1.Chalk and board only 2.Flip chart 3.Over head projector 4.Labtop and projector 5.Other	

Q4020	Do you lift any heavy materials?	1.yes          2.No	
Q4021	If yes for Q4020 what type of heavy materials you lift?	1.Teaching aid devices 2.Other heavy materials	
Q4022	If yes for Q4020 how heavy the material you lift?	1.Less than 20Kg 2. 20 Kg and above	
Q4023	Do you have any extra work other than teaching in this school?	1.yes          2.No	
Q4024	If yes for Q4023 how many hours per week?	_____hours per week	
Q4025	Does your working class have lighting problem?	1.yes          2.No	
Q4026	Does your working area have noise problem?	1.yes          2.No	
Q4027	Does your working class have thermal problem?	1.yes          2.No	
Q4028	Does your working class have ventilation problem?	1.yes          2.No	
Q4029	What is your total work load in hours per week at your school?	-----hours per week	
Q4030	How many students do you teach on average in a class?	-----students in a class	
Q4031	Have you ever got training about awareness about safety in working place?	1.yes          2.No	

## SECTION FIVE: QUESTION RELATED ON WORK RELATED BEHAVIOR

Q501	Are satisfied with working environment and work culture?	1.yes      2.No	
Q502	Have you been discouraged and depressed?	1.yes      2.No	
Q503	Do you feel exhausted?	1.yes      2.No	
Q504	Have you feel happy at work area?	1.yes      2.No	
Q505	Have you experience any verbal/physical work place violence/harassment?	1.yes 2.No	
Q506	Do you get irritated or angry at other person more often than usual?	1.yes      2.No	
Q507	If yes for Q505, to whom you get angry?	1.Family 2.Colleagues 3.Supervisors 4.Boss 5.Others	
Q508	Do you have stress?	1.yes      2.No	
Q509	If yes for Q507, for which type of stress you are experienced?	1.Family related stress 2.Financial constraint 3.Healthrelated stress 4.stress at work 5.Wories about the	

		future	
Q5010	Do you have good relationship with your Boss, Colleagues, Supervisor and family?	1.yes      2.No	
Q5011	Do you get support at your work?	1.yes      2.No	
Q5012	If yes for Q5010, from whom you get support?	1. From boss 2 From Colleagues 3.From Supervisors 4. From all the above 5. From Others 5. From all the above	

#### **SECTION SIX: QUESTION RELATED ON CO MORBIDITY**

Q601	Do you have recurrent or severe headache?	1.yes      2.No	
Q602	If yes for Q601, were you feel low back pain at that time?	1.yes      2.No	
Q603	Do you have asthmatic problem?	1.yes      2.No	
Q604	If yes for Q603, do you feel low back pain at that time?	1.yes      2.No	
Q605	Do you have history of low back injury in your life time?	1.yes      2.No	
Q606	If you have other disease specify?	1.yes      2.No	

Q607	Have you ever pregnant when working at school?	1.yes      2.No	
Q608	If yes for Q607, do you feel low back pain during pregnancy at school?	1.yes      2.No	
Q609	Height	_____ Meters	
Q610	Weight	_____ - Kilogram	
Q 611	Waist circumference	_____ cm	

**Thank you very much for your help!!!**

## **ANNEX TWO: INFORMATION SHEET TO GET PERMISSION FOR THE RESEARCH**

### **Introduction**

This information sheet is prepared to explain the research project assessment of low back pain and associated factors of LBP among First cycle and second cycle primary school teacher in Mekelle town administration, North Ethiopia.

**Name of Investigator: Aregawi Kebede (BSc)**

**Name of Advisors:** 1. Solomon Mekonnen (PhD)    2. Haile Weldie (MSc)

Name of the Sponsor: **University of Gondar**

This information sheet is prepared by above mentioned researcher whose main aim is.

To assess prevalence of low back pain and associated factors among first cycle and second cycle primary school teacher in Mekelle town administration, North Ethiopia.

### **Purpose:**

The purpose of this research study is .To assess prevalence of low back pain and associated factors among first cycle and second cycle primary school teacher in Mekelle town administration, North Ethiopia.

This study is primarily designed to find out the prevalence of LBP among first cycle and second cycle primary school teachers and to determine the associated factors influencing it and develop action plans to implement the intervention and improve the working environment. Results from this study will be used to assist in making recommendations for those who are responsible to design effective and appropriate measure for the prevention of LBP development. It also serves as base line information for subsequent studies in the country.

### **Procedure:**

This study uses institutional based quantitative cross-sectional study design, through using self administered structured Questionnaire. Permission will be processed from the Mekelle zone education office and Mekelle town administration.

### **Risk and/or Discomfort:**

There is no by participating in this research will not result in any risk or discomfort that you except scarifying helping us by giving your valuable time for responding the



questioner and as a result this will help us to work on prevention and investigation strategies.

**Benefits:**

Participation in this research Mekelle town administration, the schools and the teachers and as these beneficiaries are part of the community, anybody including you as parts of the community has indirect benefit. The findings of the study are with no doubt to implement the intervention and making them aware of the problem severity also improve the working environment and it will help to design effective and appropriate measure for the prevention of LBP development.

**Incentives/Payment for Participating:**

There will not be any incentive or payment to be given to you by taking part in this project.

**Confidentiality:**

Any personal information and identifiers & will not be taken. The information collected from this research project will be kept confidential. Information will be accessed by the researcher and will be kept locked with key.

**Persons to contact:**

This research project will be reviewed and approved by the ethical committee of the University of Gondar research and publication office. If you want to know more information you can contact the committee through the address below. If you have any question you may contact the following individuals.

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## ANNEX TREE: TIGRIGNA VERSION QUESTIONNAIRE

ጎንደር ሕክምና ጥዕና ሳይንስን ኮሌጅ

ኢንስቲትዩት ሓለዋ ጥዕና ሕብረተሰብ

አብ መቐለ ዝርከቡ ናይ ቀዳማይ ብርኪ መሥሪታን ብዛባ ቃንዛ ሐቕ መዝተት ንምጥላእ ፍቓድ መሥሪታን መጠቐሚ ሰነድ

ናይ መዝተት መፍለጺ ቁ ፅሪ -----  
-----

ሽም ቤት ትምህርቲ -----  
-----

ሰላምታ፡ ከመይ ኣለዉ ?

ኣነ -----ይበሃል፡ ምስ ኣይተ ኣረጋዊ ከበደ ዝተባሃለ አብ ጎንደር ዩኒቨርሲቲ ናይ ካልኣይ ዲግሪ ትምህርቲ እናተምሃረ ዝርከብ ሓበሬታ ንምእካብ ኣብዙይ ተረኽቦ ኣለኹ፡ እቲ ሕብ ብዘዕባ መኖሪቲ አብ መቐለ ዝርከቡ አብ መግስታዊ ቤት ትምህርቲ ዝሰርሑ ናይ ቀዳማይ ብርኪ መሥሪታን ኣተኩሩ ና ብዘዕባ ዝርግሐ ቃንዛ ታሕተዋይ ሐቕን ተኣሳሳሪነት ዘለዎም ምክኒያታን ጥረ መዳእታ ንምእካብ እየ ኣብዙይ ተረኽቦ ዘለኹ፡ ብምኡእውን አብ ምእካብ መዳእታ ናይኻ/ኺ ተሳትፎ ንናይ ስራሕ ቦታን ከባቢን ድሕንነት ብፍላይ ድማ ቃንዛ ታሕተዋይ ሐቕ ንምጋትን ንምክልኻልን ዘበርከቶ እጃም ዝለዓለ እየ፡ ሽምባ/ኪ ምሓፍ ኣየደየንን፡ ብዘዕባኻ/ኺ ዝኾነ ናይ ወልቀ ሓበሬታ ብመግባእ ዝተሓለወ እየ፡ ንማንም ሰብ ኣሕሊፍና ኣይንህበን፡ እቲ ተሳትፎ ብፍቓድኩ እየ ዝኸመን፡ ደስ እንተዘይልኩም ኣብ ዝደለኹም ግዘ ከተቋርፁ ትኽእሉ ኢኹም፡ እቲ መዝተት ከባቢ 25 ደቓይቕ ዩ ዝወሰድ፡ እንድሕር ፍቓድኩም ኮይኑ ክቐፅል ዶ?

1. እሺ እንተኾይኑ ቐፅል
2. እምቢ እንተኾይኑ ናብ ካለእ ሕሊፍ

ንዝኾነ ክልዕልዎ ዝደልይዎ ሕብ እንተሃለይዎም ነቲ ተመራማሪ በዚ ሰዕቡ ዘሎ ኣድራሻ ክረኽቡዎ ይኽእሉ እዮም፡

ዋና ተመራማሪ፡ - ኣረጋዊ ከበደ፤

ስልኪ ቁፅሪ፡ +251-914-556-763፤ ኢሜል awazd1986@gmail.com

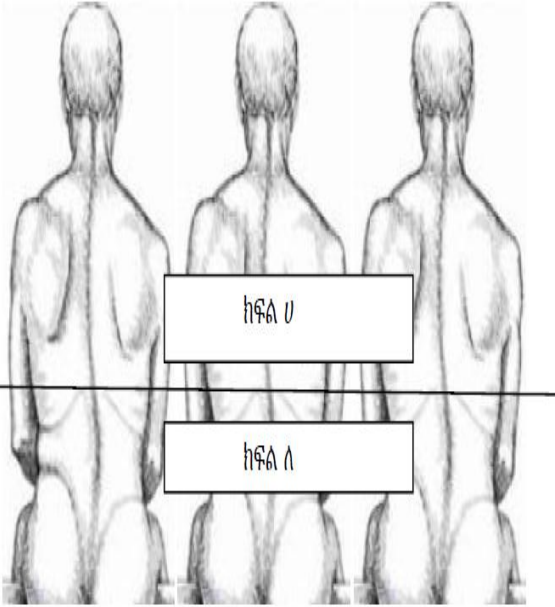
**SELF-ADMINISTERED QUESTIONNAIRE IN TIGRIGNA VERSION**

ክፍሊ ሓደ : ኩነታት ማህበራዊን ስነ-ህዝባዊን ዝምልከት

ሪጋ	ሕሳብ	መልሲታት	ኮድ
ሕ101	ፆታ	1. ተባቦታይ 2. ኣነስታይ	
ሕ102	ዕድሙ	-----ዓመት	
ሕ103	ንቐፅሪ ሕሳብ 101 መልሲን ኣነስታይ እንተኮይኑ ኣብ ዚ ዓመትእዚ ጥንሲ ኣለወንዶ?	1. እወ 2. የለን	
ሕ104	ሃይማኖት	1. ኢርቶዲክስ 2. መስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ካለእ-----	
ሕ105	ኩነታት ትምህርቲ	1. ፒ. ኤች. ዲ. 2. ካልኣይ/ማእተርስ ዲግሪ 3. ቀዳማይ ዲግሪ 5. ዲፕሎማ 5. ሰርተፊኬት 6. ካለእ----- ---	
ሕ106	ኩነታት ሓዳር	1. ዘይተመረመ/ት 2. ዝተመረመ/ት 3. ዝተፋትሐ/ት 4. ተፈላለፍም ዝነብዱ 5. ዝሞተዩ/ታ	
ሕ107	ዓይነት በዝሒ ክፍለ ጊዜ ዘምህርሉ ሳክል	1. ቀዳማይ ሳክል (1- 4 ክፍልታት) 2. ካልኣይ ሳክል (5-8 ክፍልታት)	
ሕ108	ዘምህርሉ ኩነት	1. ኣብ ሓደ ክፍሊ በይኖም/ን ሓዘም/ን	

		2. በቢ ክፍሉ እናተዘዋውሩ/ራ	
ሕ109	ልምዲ ስራሕ ብዓመት	-----ዓመት	
ሕ1010	ወርሐዊ መ/ያ ብብር ኢትዮጵያ	-----ብር	
ሕ1011	ካብ መ/ያ ወፃኢ ካለእ ፍልፍል እቶት ገንዘብ አለዎም/ንዶ ?	1.እወ                      2.የለን	
ሕ1012	ንሕሮ ቁፅሪ 1010 መልሶም/ን እወ እንተኮይኑ ብወርሒ ከንደይ ዝኣካል ብር	-----ብር	

ክፍሊ ክለተ: ንቃንዛ ሕቕ ዝምልከት ዝተዳለወ ሕቕ

Q201	ብምክንያት ስራሕ/ን ኣብ ዘመን ስራሕ እዋናም/ን ቃንዛ ሕቕ አጋጠሙም/ን ዶ ይፈልጥ?	1.እወ 2.የለን	
ሕ202	ንሕሮ ቁፅሪ 201 መልሶም/ን እወ እንተኮይኑ ኣብ ኣየናይ ክፋል ሕቕኡም ቋንዛ  <p>የ ስምዎም?</p>	1. ክፋል ሀ 2. ክፋል ለ 3. ክፋል ሀ ን ለን	

	ካብ መስመር ንታሕቲ ዘሎ ክፋል (ለ) ታሕተዋይ ክፋል ሓቕ እዩ፡፡		
ሕ203	እቲ ቃንዛ መንዝ እዩ ጀመረዎም?	1. ቅድሚ ስራሕ ምቕፃረይ 2. ስራሕ ምስተቐፀርኩ	
ሕ204	እቲ ቃንዛ ዝስምም/ን ብምታይ ክፋት እዩ?	1. ጠው ክብል እንክለኹ 2. እክምህር እንክለኹ 3. ኮፍ ክብል እንክለኹ 4. ክደቅስ እንክለኹ 5. ክሰጉም እንክለኹ 6. ኣካላዊ ምቕስቓስ ክገብር እንክለኹ 7. ካለእ እንተሃለዩ ይጥቀሱ/ሳ	
ሕ205	ናይቲ ቃንዛ ምድግጋም እንታይ ይመስል	1. ሓደ ጊዘ ጥራሕ 2. ሓልሓሊፉ 3. በዝተደጋጋሚ ግዘ 4. ከሉ ግዘ	
ሕ206	ኣብ ዝሓለፉ 12 ኣዋርሕ ቃንዛ ሓቕ ተሰማዖምዶ ይፈልጥ?	1. እወ 2. የለን	
ሕ207	ንሕቶ ቁፅሪ 206 መልሶም/ን እወ እንተኾይኑ ንኸንደይ ዝኣክል ግዘ እናሕመማዎ ይፀንሕ	1. ትሕቲ 6 ሰመን 2. 6-12 ሰመን 3. ልዕሊ 12 ሰመን	

ሕ208	ቀንዲ ምክንያት ቃንዛ ሐቕኦም እንታይ እዩ ይኸውን ኣለም ይሓስቡ?	1.ንነዊሕ ግዜ ጠጠው ምግል 2.ንነዊሕ ግዜ ኮፍ ምግል 3.ከቢድ ሽኽማግምልዓል 4.ብተደኣት ሐቕ 5.ተቐማጠ ስራሕ ክሰርሕ እነከለኹ 6. ኣብ ክፍሊ ብተደጋጋሚ ምርማድ/ ምክንያም/ 7. ኣብ ፀለም ሰሌዳ ብተደጋጋሚ ምቅሓፍ 8.ምክንያቱ ኣይፈልጦን 9.ካለእእንተሃሊዩ ዎም/ን ይጥቅሱ/ሳ	
ሕ209	ብምክንያት ቃንዛ ሐቕኦም/ን ኣብ ወሽጢ 12 ኣዋርሕ ክንደይ ዝኣክል ናይ ስራሕ መልእክታት ብዘይ ስራሕ ኣሕሊፎም/ን ይፈልጡ/ጣ?	----- - መልእክታት	

ክፍሊ ሰለስተ፡ ባህሪታት መሃሪን ዝጥምቱ ሕሳታት

ሕ301	ሽጋራ ሕዚ የትክኸድዮም/የን ወይስ የትክኸ ነይሮም/ን?	1.እወ 2.የለን	
ሕ302	ንሕሶ ቁፅሪ 301 መለሶም/ን እወ እንተኸይኑ ክንደይ ሽጋራ ኣብ መልእክት የትክኸ/ኻ?	----- ሽጋራ ኣብ መልእክት	
ሕ303	ጫካ ሕዚ ይቕሕመ/ማ ዶ? ወይስ ቅድም ክብል ይቕሕመ/ማ ነይረን?	1.እወ 2.የለን	
ሕ304	ንሕሶ ቁፅሪ 303 መለሶም/ን እወ እንተኸይኑ ኣብ ሰማ ክንደይ ግራም ጫካ ይቕሕመ/ማ ነይሮም/ረን?	----- ግራም	
ሕ305	ኣልኮላዊ መከተ ይሰትዩ/ያ ድዮም/የን?	1.እወ	

		2.የለን	
ሕ306	ንሕሹ ቁፅሪ 305 መልሶም/ን እወ እንተኾይኑ እንታይ ዓየነት መተ ይሰትዩ?	1. በራዓየነት 2.ካብ በራ ብኣለኮል ትሕዝትኡ ብዝሕ ዝበለ 3. ሕዋስ በራን ካለእ ዓይነት መተን	
ሕ307	ንሕሹ ቁፅሪ 305 መልሶም/ን እወ እንተኾይኑ ከንደይ ዝኣከል?	-----ጠርመሽ/መክኢ ብሰማ	
ሕ308	ኣብ ናይ ድቃስ እዋን ምርባሽ ወይ ፀገም ኣለኩም/ከን ድዩ?	1.እወ 2.የለን	
ሕ309	ኣብ መጻልቲ ከንደይ ሰዓት ይድቅሱ/ሳ?	-----ሰዓታት	
ሕ3010	መደበኛ ዝኾነ ኣካላዊ ምንቅስቃስ/ስፖርት/ ናይ ምስራሕ ልምዲ ኣለዎም/ን ዶ?	1.እወ 2.የለን	
ሕ3011	ሰዓቱ ዝሓለወን ዝተመገጠን ምቢ ናይምምብ ልምዲ ኣለዎም/ን ዶ?	1.እወ 2.የለን	

ከፍለጻርባዕተ፡ ኣብ ናይ ስራሕ ቦታ ዘተኮሩ ሕሹታት

ሕ401	ከምህሩ እንከለዉ ጠጠው ይብሉ/ላ ዶ?	1.እወ 2.የለን	
ሕ402	ንሕሹ ቁፅሪ 301 መልሶም/ን እወ እንተኾይኑ ብመጻልቲ ብዘይ ዕረፍቲ ከንደይ ሰዓት ጠጠው ይብሉ/ላ ወይ የምህሩ/ራ?	-----ሰዓታት	
ሕ403	ብመጻልቲ ከንደይ ሰዓት ዕረፍቲ ኣለዎም/ን	-----ሰዓታት	
ሕ404	ኣብ ስራሕ ቦታ ንነዊሕ ግዝ ኮፍ ይብሉ/ላ ድም?	1.እወ 2.የለን	

ሕ405	ንሕዮ ቁፅሪ 304 መልሶም/ን እወ እንተኾይኑ ብመልቲ ኣብ ስርሖም/ን ንክንደይ ሰዓታት ይቐመጡ/ጣ?	-----ሰዓታት	
ሕ406	ንነዊሕ ሰዓታት ክቐመጡ/ጣ ወይ ኮፍ ክብሉ/ላ ዝገብሮም/ን እንታይ እዮ?	1. ምእራም ፈተና 2. ብወልቀ ወይ ብጉጅለ ንዝወሃብ ስራሕ ምእራም 3. ክፍሊ ዕዮ ምእራም 4. ገዛ ዕዮ ምእራም 5. ካለእ እንተሃለዩ የጥቀሱ/ሳ	
ሕ407	ዝሰርሕሉ ቤት ትምህርቶም/ን ንኣካላዊ ምንቅስቃስ /ስፖርት/ ዝኸውን ቦታ ኣለዎ ዶ?	1. እወ 2. የለን	
ሕ408	ንሕዮ ቁፅሪ 307 መልሶም/ን እወ እንተኾይኑ ቤት ትምህርቶም/ን ንኣካላዊ ምንቅስቃስ /ስፖርት/ ዝኸውን ፕሮግራም ኣለዎ ዶ?	1. እወ 2. የለን	
ሕ409	ንሕዮ ቁፅሪ 308 መልሶም/ን እወ እንተኾይኑ ንሶም/ን ኣብቲ ፕሮግራም ይሳተፉ/ፋ ዶ?	1. እወ 2. የለን	
ሕ4010	ዝሰርሕሉ ናይ ስራሕ እዋን ኣናይ እዮ?	1 ከሉ ግዘ ንጉሆ  2. ከሉ ግዘ ድሕሪ ሰዓት  3. ሓደ ሰማ ንጉሆ ካለእ ግዘ ድሕሪ ሰዓት	
ሕ4011	ኣብ ስራሕ ቦትኣም/ኣን መከርሒ ክፍሊ/ቢሮ/ ኣለዎም/ን ዶ?	1. እወ 2. የለን	
ሕ4012	ንሕዮ ቁፅሪ 3011 መልሶም/ን እወ እንተኾይኑ ንመከርሒ ዝኸውን ወንበርን ጠረጴዛን ኣለዎም/ን ዶ	1. እወ 2. የለን	
ሕ4013	ንሕዮ ቁፅሪ 3012 መልሶም/ን እወ እንተኾይኑ ዝሰርሒ/ሒ ሉ ወንበር ምቕዊ ድዩ?	1. እወ 2. የለን	



ሕ4014	ንሕዮ ቁፅሪ 3012 መልሶም/ን እወ እንተኾይኑ ዝሰርሐ/ሓ ሉ ጠረንጴዛ ምቹዊ ደዩ?	1.እወ 2.የለን	
ሕ4015	ንሕዮ ቁፅሪ 3012 መልሶም/ን እወ እንተኾይኑ ዝግልገል/ላሉ ወንበር ብቑመዮም ዓቕን ደዩ?	1.እወ 2.የለን	
ሕ4016	ንሕዮ ቁፅሪ 3012 መልሶም/ን እወ እንተኾይኑ ዝግልገል/ላሉ ጠረንጴዛ ብቑመዮም ዓቕን ደዩ?	1.እወ 2.የለን	
ሕ4017	መምሪ ሓገዝ ይጥቀመ/ማ ዶ?	1.እወ 2.የለን	
ሕ4018	ንሕዮ ቁፅሪ 3017 መልሶም/ን እወ እንተኾይኑ ኣየናይ ዓይነት መምሪ ሓገዝ ይጥቀመ/ማ?	1.ቐኸን ፀለም ሰሊዳን ጥራሕ 2.ቻርት ወረቐት 3.ምስሊ ወይ ፅሐፍ መርኣዩ ፕሮጀክተር 4. ላብዮፕን ፕሮጀክተርን 5. ካለእ እንተሃለዎም/ን ይጥቀሱ/ሳ	
ሕ4019	ካከቢድ ነገር ልዕሉ/ላ ደዮም/ን?	1.እወ 2.የለን	
ሕ4020	ንሕዮ ቁፅሪ 3019 መልሶም/ን እወ እንተኾይኑ ኣየናይ ከቢድ ነገር እዮም/ን ዘልዕሉ/ላ?	1. መሳርሒታት መምሪ ሓገዝ 2.ካለእ ከቢድ ኣቕሓ	
ሕ4021	ንሕዮ ቁፅሪ 3019 መልሶም/ን እወ እንተኾይኑ ዘልዕለዎ/ልኣኣቕሓከብደቱ ከንደይ ዝኣካል እዩ?	1..ትሕቲ 20 ከለማራም 2 . 20 ከለማራምን ልዕለኡን	
ሕ4022	ኣብዚ ካብ ዝሰርሐዎ ወፃኢ ካለእ ኣብ ካለእ ዝሰርሐዎ ስራሕ ኣለዎም/ን ደዩ?	1.እወ 2.የለን	
ሕ4023	ንሕዮ ቁፅሪ 3021 መልሶም/ን እወ እንተኾይኑ ኣብ ሰማ ከንደይ ሰዓት ይሰርሐ/ሓ?	-----ሰዓት	
ሕ4024	ኣብ እተምህርሉ/ራሉ ክፍሊ እኹል ዝኾነ ብርሃን ኣለዎ ዶ?	1.እወ 2.የለን	

ሕ4025	ዘምህርሉ/ራሱ ክፍሊ ዝርብሽ ድምጺ ኣለዎ ድዩ?	1.እወ 2.የለን	
ሕ4026	ዘምህርሉ/ራሱ ክፍሊ ናይ መቐት ዘይ ምምጥጣን ኣለዎ ድዩ?	1.እወ 2.የለን	
ሕ4027	ዘምህርሉ/ራሱ ክፍሊ እኹል ዝኾነ ዝወወሮ ኣየር ኣለዎ ድዩ?	1.እወ 2.የለን	
ሕ4028	ኣብ ዘምህርሉ ቤት ትምህርቲ ኣብ ሰማ ጠሰዓታት ክንደይ ዝኣክል ክፍለምህሩ/ራ1?	----- ሰዓታት	
ሕ4029	ኣብ ሓንቲ ክፍሊ ብ ሜክላይ ክንደይ ተምሃሮ የምህሉ/ራ?	----- ተምሃሮ	
ሕ4030	ኣብ ዘምህርሉ ቤት ትምህርቲ ብዘዕባ ኣብ ስራሕ ቦታ ክግበሩ ዝግብኦም ጥንቓቕታት ኣፍልጦ ዝህብ ስልጠና ብዘምእኩቶ ኣካል ተዋሂብዎም/ን ይፈልጥ ዶ?	1.እወ 2.የለን	

ክፍሊ ሓመቕተ፡ ከነ ታት ስነ ልቦናን ማእበራዊ ጉዳያትን ዘተከሩ ሕቶታት

Q501	ብዘሎ ናይ ስራሕ ክባቢን ብህሊን ሕጉስ ድዮም/ን?	1.እወ 2.የለን	
ሕ502	ወደቀት ሞራል ወይ ደስ ዘይብል ክነት ኣጋጠሞም/ን ይፈልጥ ዶ?	1.እወ 2.የለን	
ሕ503	እቲ ዝሰርሕዎ/ኡ ስራሕ የደክምዶ?	1.እወ 2.የለን	
ሕ504	ኣብ ስራሕቦትኦም/ን ሕጉስ ድዮም/የን ?	1.እወ 2.የለን	

ሕ505	ኣብ ስራሕ ቦታኻ ካብ ወትሩ ፍልይ ብዘበለ ከነት ምስ ዝኾነ ሰብ ተናዲዶም/ን ዶ ትፈልጡ/ጣ ?	1.እወ 2.የለን	
ሕ506	ንሕቶ ቁፅሪ 505 መልሶም/ን እወ እንተኾይኑ እቲ ንዴት ምስ ምንታይ ዝተኣሳሰረ እዩ?	1. ምስ ስድራ 2. ምስ መሳርሕቲ መካዙቶም/ተን 3. ምስ ሱፐርቫየዘራት 4. ምስ ላዕለዎትሓለፍቲ 5. ምስ ካልኣት	
ሕ507	ይጭቐ/ቻ ዶ?	1.እወ 2.የለን	
ሕ508	ንሕቶ ቁፅሪ 505 መልሶም/ን እወ እንተኾይኑ እቲ ዝጭቐ/ቻኡ ከነት ምስ ምንታይ ዝተኣሳሰረ እዩ?	1. ምስ ስድራ 2. ምስ ገንዘብ/ሃብቲ ሕፅረት ወይ ናብራ 3. ምስ ጥዕና 4. ምስ ስራሕ 5. ምስ መገኢ ከነት	
ሕ509	ምስ እዞም ዝሰዕቡ ዘለዉ ኣካላት ፅበቕ ዝኾነ ርክብ ኣለዎም/ን ዶ?		
	▪ ምስ ስድራ	1.እወ 2.የለን	
	▪ ምስ መሳርሕቲ መካዙቶም/ተን	1.እወ 2.የለን	
	▪ ምስ ሱፐርቫየዘራት	1.እወ 2.የለን	
	▪ ምስ ላዕለዎትሓለፍቲ	1.እወ 2.የለን	
ሕ5010	ኣብ ስርሖም/ሐን ሐገዝ ወይ ድጋፍ ይረኽቡ/ባ ዶ?	1.እወ 2.የለን	

ሕ5011	ንሕዮ ቁፅሪ 5010 መልሶም/ን እወ እንተኾይኑ ዝረኽበዎ/ኡ ካብ መን እዩ ?	1. ካብ ላዕለዎትሓለፍቲ 2. ካብ ሱፐርሻየዘራት 3. ካብ መሳርሕቲ መካዞቶም/ተን 4. ካብ ካልእት	
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ክፍሊ ሽዳሽተ : ተዛመድቲጉዳት ዘተኮሩ ሐዮታት

ሕ601	ከብድ ዝበለ ናይ ርእሲ ሕሞም ኣለዎም/ን ዶ?	1. እወ 2. የለን	
ሕ602	ንሕዮ ቁፅሪ 601 መልሶም/ን እወ እንተኾይኑ ርእሶም/ን እንትሕጥም/ን ኣብ ታሕተዎይ ክፋል ሕቕኦም/ን ቃንዛ ይስመዎም/ን ዶ ?	1. እወ 2. የለን	
ሕ603	ሕሞም ኣስሚ ኣለዎም ዶ?	1. እወ 2. የለን	
ሕ604	ንሕዮ ቁፅሪ 601 መልሶም/ን እወ እንተኾይኑ ሕሞም ኣስሚ እንትለዓሎም/ን ኣብ ታሕተዎይ ክፋል ሕቕኦም/ን ቃንዛ ይስመዎም/ን ዶ ?	1. እወ 2. የለን	
ሕ605	ቅድም ከብል ክሳብ ሕዚ ኣብ ሂወቶም ወሽጢ ጉድኣት ታሕተዎይ ክፋል ሕቕ ነይርዎም/ን ይፈልጥ ደዩ ?	1. እወ 2. የለን	
ሕ606	ካለእ ሕሞም እንተሃሊይዎም/ወን ይዘርዝሩ/ራ	----- ----- ----- ----- -	
ሕ607	ኣብ ስራሕ ቦታ እናሰርሐ ጥንሲ ጠቂሰንዶ የፈልጣ?	1. እወ 2. የለን	
ሕ608	ንሕዮ ቁፅሪ 607 መልሰን እወ እንተኾይኑ ኣብ ታሕተዎይ ክፋል ሕቕኦን ቃንዛ ይስመን ዶ ነይሩ?	1. እወ 2. የለን	

ንዝገበሩላይ ምትሕብባር ኣዚየ የመከግን::

**ANNEX FOUR: INFORMATION SHEET AND CONSENT FORM  
TIGRIGNA VERSION**

**ሰነድ መሃሊ ሓበሬታን መቼ ስምምነትን**

አብ መቐለ ከተማ ዝረከቡ መንግስታዊ 1<sup>ይ</sup> ን 2<sup>ይ</sup> ን ሳይክል ቀዳሜ ብርኪ ቤት ትምህርቲ መሃሪን ብዘዕባ ቃንዛ ታሕተዋይ ክፋል ሐቕን ተተሓሳዝነት ዘለዎም ነገራትን ንምፍላጥ ንዝግበር መኖሪቲ ንመሃሊ ሓበሬታን መቼ ስምምነትን ዝተዳለወ ሰነድ

ሽም ዋና መሳዲ መኖሪቲ /ተሜሚ/፡ አረጋዊ ከበደ

ሽም ትካል ፡ ጎንደር ሕክምናን ጥዕና ሳይንስን ኮሌጅ ፣ ኢንስቲትዩት ሓለዋ ጥዕና ሕብረተሰብ

ወግኢ ዝሸፍን ትካል፡ ጎንደር ዩኒቨርሲቲ

መቐተዊ ፡ - እዚ ሰነድ መሃሊ ሓበሬታን መቼ ስምምነትን ንሶም/ሰን ንኸሰተፍሉ ንሓተሉ መበራህርሂ ሰነድ እዩ፡፡ በይዞኡም ቅድሚ ንንኸሰተፉ ቅድሚ ምዃናም በቶም ሓበሬታ አከብቲ አካላት ዝንበብ ሰነድ ስምምነት መጠቐሚታ ዕን አለም/ን ብምክማር ሕሳብ እንተሃለዎም/ወን ይሕተቱ፡፡ አብዚ መኖሪቲ ምክታፍ ምክ ጀመሩ/ራ ድሕሪ ምጅመሩን አብ ዝኾነ እዋንን ሕሳብ ምሕታት ይኸእሉ እዮም፡፡ እቲ መኖሪቲ ዝካየድ ብሓደ ኤምፒራቲ ተሜቂ ተምሃሪን ብክልተ ናይ ጎንደር ዩኒቨርሲቲ አማኸርቲን እዩ፡፡

ዕላማ እቲ መኖሪቲ

ናይዚ መኖሪያ ቦላማ ኣብ መቐለ ከተማ ዝረከቡ መንግስታዊ 1<sup>ይ</sup> ን 2<sup>ይ</sup> ን ሳይክል ቀዳሜ ብርኪ ቤት ትምህርቲ መህሪን ብዘዕባ ቃንዛ ታሕተዋይ ክፋል ሐቕን ተተሓታዝነት ዘለዎም ነገራትን ንምፍላጥ ዩ:: እዚ መኖሪያ እዙይ ኣብዚ ሐዚ እዋን ቃንዛ ታሕተዋይ ክፋል ሐቕ ዘብፅሖ ጉድኣት ንምፍላጥን ፍታሕ ንምእላሽን ዝለዓለ ግደ ይህልዎ:: ብተወሳኺ ኣብ ሃገርና ንዝካየዱ ካልኣት መኖሪያ ከም መዝገቢ ብምዃን የገልግል::

### **ከይዲ ኣስራርሓ**

ኣብ መቐለ ከተማ ዝረከቡ መንግስታዊ 1<sup>ይ</sup> ን 2<sup>ይ</sup> ን ሳይክል ቀዳሜ ብርኪ ቤት ትምህርቲ መህሪን ብዘዕባ ቃንዛ ታሕተዋይ ክፋል ሐቕን ተተሓታዝነት ዘለዎም ነገራትን ንምፍላጥ ኣብ ዝካየድ መኖሪያ ንክሳተፉ/ፋ ተጋበዞም/ዘን ኣለው/ዋ:: ኣብዚ ፅንዓት ወሽጢ ንክሳተፉ/ፋ እንድሕር ተስማሚም/ዐን እንተኾይናም/ነን እቲ ስምም ተረዳኦም/ኣን ስምምነቶም/ተን በዝተኸበረ ፊርማም/ኣን ምላሶ ይግባእ:: ካብዚ ንድሓር መረዳኦም/ኣን ኣካቢ እቲ መክላት ምስ ሃቦም/ን እቶም ሕጽታት ብምስትወዳል ወሲዶም/ን ባዕሎም/ን ይመልኡ/ኣ:: ሽሞም/መን ምንጋር ኣየድልን:: ዝህብዎ ሓበሬታ ምሽጥራዊነቱ ሕልው እዩ::

### **ስግኣታት ሓዲጋን ዘይምቕደ ኮነትን**

ኣብዚ መኖሪያ ብምስታፎም/ፈን ብዘተወሰነ መልከው ምቕደ ዘይምቕደን ስምዒት ክህልዎም/ወን ይኽእል እዩ:: ብፍላይ ናይ ስራሕ ሰዓቶም/ተን ን25 ደቓይቓ ይሻመ እዩ:: ይኸን እምበር እቲ መኖሪያ ዝህበ ጥቕሚ ብሞርዳእ ከምዝሳተፉ/ፋ መላእ ተስፋ ይገብር::

### **ረብሓ**

ኣብዚ መኖሪያ ብምስታፎም/ፈን ቀጥታ ዝኾነ ረብሓ ዘይከረኸቡ ይኸቡ ይኸእሉ እዮም/የን:: ይኸን እምበር ኣብ መህሪን ንዝበፅሖ ቃንዛ ታሕተዋይ ክፋል ሐቕን ተተሓታዝነት ዘለዎም ነገራትን ንምኖሪ ይረድእ እዩ:: ብተወሳኺ እቲ ፀገም ንምፍታሕን ንምክልኻልን ኣብ ዝግበር ምስትኽኻል ስትራተጂ ይሕግዝ እዩ::

### **ክፍሊት ዝምልከት**

ኣብዚ መኖሪያ እዙይ ብምስታፎም/ፈን ዝረኽቦም/ኣ ክፍሊት የለን::

### **ምሽጥር ብዘዕባ ምእለው**

በዚ መኖሪያቱ አቢሉ ንዝእከቡ መረዳኢታት ማሸጠሮም ዝተሓለወ እዩ፡፡ እቲ ዝእከብ መረዳኢታ ናቶም/ ንንምዃኑ ዝገልፅ ሙሉዩ የብሉን፡፡ እቲ መረዳኢታ ብዋና መኖሪያቱ መካየዲ ፋይል ተገይሩ ኣብ ቁልፊ ዘለዎ ተቐሊፉ ስለዝቐመጥ ካለእ ሰብ ክለኽቦን ክሪኦን ኣይኽእልን፡፡

**ኣብ መኖሪያቱ ዘይምስታፍ ወይ ዓርስኻ ካብ መኖሪያቱ ምግላል መስል**

ኣብቲ ዝካየድ መኖሪያ ምስታፍ እንተዘይደልዮም/የን ዘይምስታፍ መላእ መስል ኣለዎም፡፡ ካብቲ መዝኻት ወሽጠሊኡ ወይ መላእ ብመላእ መልሲ ዘይመሃብ መስል ኣለዎም/ን፡፡

**ክረኽቡዎም/ኦም ዝኽእሉ ሰባት**

ብዘዕባ እዚ መኖሪያቱ እዙይ ክሓቱ/ታ እንተደልዮም/የን እዞም ዝስዕቡ ሰባት ምስታት ይኽእሉ/ላ እዮም/የን፡፡

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## Declaration

I the undersigned, senior MPH student declare that this proposal is my original work in partial fulfillment of the requirements for the degree of Master of public health in Environmental and occupational safety and health management.

**Name:** Aregawi Kebede

**Signature:** -----

**Place of submission:** Institute of Public Health, College of Medicine and Health Science, University of Gondar

**Date of submission:** -----

This thesis will be submitted for examination with my/ our approval as university advisor(s).

### Advisors

**Name**

**Signature**

1. Solomon Mekonnen(PhD)

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2. Haile Woldie (MPH)

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